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LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT DATA PACKAGE NUMBER 7, --ETC(U)
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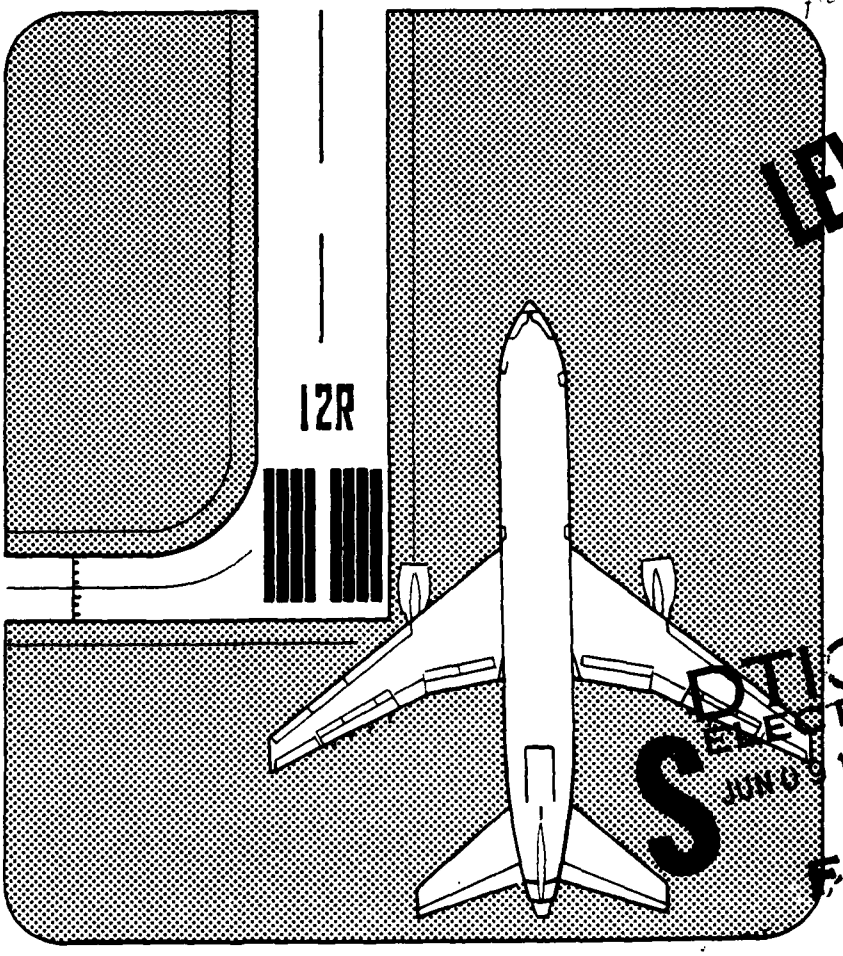
LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT DATA PACKAGE NO. 7.

AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



prepared for
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
under contract
DOT-FA77WA-3961

PMM&Co. Peat, Marwick, Mitchell & Co.

AUGUST 1980

Peat, Marwick, Mitchell & Co.

P.O. Box 8007
San Francisco International Airport
San Francisco, California 94128

(415) 347-9521

August 26, 1980

Mr. Michael M. Scott, ATF-4
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

Re: St. Louis Data Packages No. 6 and No. 7

Dear Mike:

Enclosed are twenty-five copies of Data Packages No. 6 and No. 7 for Lambert-St. Louis International Airport. Data Package No. 6 presents the improvement benefit descriptions and summarizes the results of the delay analyses. All the supporting data for Data Package No. 6 are presented in Data Package No. 7.

The St. Louis Task Force should review both data packages during the meeting scheduled for August 28, 1980.

Sincerely,

Stephen L. M. Hockaday
Manager

SLMH/db
Enclosure

cc: Mr. J. R. Dupree (ALG-312) (w/o enclosure)
Mr. M. J. Fischer (ACE-610)

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT

DATA PACKAGE NO. 7

Airport Improvement Task Force
Delay Studies

Prepared by

Peat, Marwick, Mitchell & Co.
San Francisco, California

August 1980

CONTENTS

Attachment A

EXPERIMENTAL DESIGN

Table A-1

REVISED DESCRIPTION OF EXPERIMENTS
Lambert-St. Louis International Airport
Airport Improvement Task Force Delay Studies

Experiment number	Model	Arrival runways	Departure runways	Weather	Demand	ATC	Improvements
1	ASM[a]	12R,12L	12R,12L	VFR	1979 Demand and Mix	Present[b]	Baseline
2	ASM	12R,12L	12R,12L	IFR1	1979 Demand and Mix	Present	Baseline
3	ASM	12R,12L	12R,12L	IFR2	1979 Demand and Mix	Present	Baseline
4	ASM	30R,30L	30R,30L	VFR	1979 Demand and Mix	Present	Baseline
5	ASM	30R,30L	30R,30L	IFR1	1979 Demand and Mix	Present	Baseline
6	ASM	30R,30L	30R,30L	IFR2	1979 Demand and Mix	Present	Baseline
7	ASM	30R,30L,24	30R,30L	IFR1	1979 Demand and Mix	Present	Baseline
7a	ASM	30R,30L,24	30R,30L	VFR	1979 Demand and Mix	Present	Baseline
8	ASM	12R,12L	6,12R,12L	VFR	1979 Demand and Mix	Present	Baseline
9	ASM	12R,12L	6,12R,12L	IFR1	1979 Demand and Mix	Present	Baseline
10	ASM	12R,12L	6,12R,12L	IFR2	1979 Demand and Mix	Present	Baseline
11	ASM	24	24	IFR2	1979 Demand and Mix	Present	Baseline
12	ASM	12R,12L,17	12R,12L	VFR	1979 Demand and Mix	Present	Baseline
13	ASM	12R,12L,17	12R,12L	IFR1	1979 Demand and Mix	Present	Baseline
14	ASM	12R,12L	12R,12L	VFR	1979 Demand and Mix	Present	A/F Development
15	ASM	12R,12L	12R,12L	IFR1	1979 Demand and Mix	Present	A/F Development
16	ASM	30R,30L	30R,30L	VFR	1979 Demand and Mix	Present	A/F Development
17	ASM	30R,30L	30R,30L	IFR1	1979 Demand and Mix	Present	A/F Development
18	ASM	30R,30L,24	30R,30L	IFR1	1979 Demand and Mix	Present	A/F Development
18a	ASM	30R,30L,24	30R,30L	VFR	1979 Demand and Mix	Present	A/F Development
19	ASM	12R,12L	6,12R,12L	VFR	1979 Demand and Mix	Present	A/F Development
20	ASM	12R,12L	6,12R,12L	IFR1	1979 Demand and Mix	Present	A/F Development
21	ASM	12R,12L,17	12R,12L	VFR	1979 Demand and Mix	Present	A/F Development
22	ASM	12R,12L,17	12R,12L	IFR1	1979 Demand and Mix	Present	A/F Development
23	ASM	30R,30L	30R,30L	IFR1	1979 Demand and Mix	Present	LDA Approach
24	ASM	30R,30L,24	30R,30L	IFR1	1979 Demand and Mix	Present	LDA Approach
24a	ASM	30R,30L,24	30R,30L	VFR	1979 Demand and Mix	Present	LDA Approach
25	ASM	12R,12L	6,12R,12L	IFR1	1979 Demand and Mix	Present	LDA Approach
26	ASM	12R,12L	12R,12L	VFR	1985 Demand and Mix	Present	Baseline
27	ASM	12R,12L	12R,12L	IFR1	1985 Demand and Mix	Present	Baseline
28	ASM	12R,12L	12R,12L	IFR2	1985 Demand and Mix	Present	Baseline
29	ASM	30R,30L	30R,30L	VFR	1985 Demand and Mix	Present	Baseline
30	ASM	30R,30L	30R,30L	IFR1	1985 Demand and Mix	Present	Baseline
31	ASM	30R,30L	30R,30L	IFR2	1985 Demand and Mix	Present	Baseline
32	ASM	30R,30L,24	30R,30L	IFR1	1985 Demand and Mix	Present	Baseline
33	ASM	12R,12L	6,12R,12L	IFR1	1985 Demand and Mix	Present	Baseline
34	ASM	12R,12L,17	12R,12L	IFR1	1985 Demand and Mix	Present	Baseline
35	ASM	12R,12L	12R,12L	VFR	1985 Demand and Mix	Present	A/F Development
36	ASM	12R,12L	12R,12L	IFR1	1985 Demand and Mix	Present	A/F Development
37	ASM	30R,30L	30R,30L	VFR	1985 Demand and Mix	Present	A/F Development
38	ASM	30R,30L	30R,30L	IFR1	1985 Demand and Mix	Present	A/F Development
39	ASM	30R,30L,24	30R,30L	IFR1	1985 Demand and Mix	Present	A/F Development
40	ASM	12R,12L	12R,12L,6	IFR1	1985 Demand and Mix	Present	A/F Development
41	ASM	30R,30L	30R,30L	IFR1	1985 Demand and Mix	Present	LDA Approach
42	ASM	30R,30L,24	30R,30L	IFR1	1985 Demand and Mix	Present	LDA Approach
43	ASM	12R,12L	12R,12L,6	IFR1	1985 Demand and Mix	Present	LDA Approach
44	ASM	12R,12L	12R,12L	VFR	1985 Demand and Mix	Present	Terminal Expansion
45	ASM	30R,30L	30R,30L	IFR1	1985 Increase Heavy Mix	Present	A/F Development
46	ASM	30R,30L,24	30R,30L	IFR1	1985 Increase Heavy Mix	Present	A/F Development
47	ASM	30R,30L	30R,30L	IFR1	1985 Increase Heavy Mix	Present	LDA Approach
48	ASM	30R,30L	30R,30L	IFR1	1985 Decrease GA Mix	Present	A/F Development
49	ASM	30R,30L,24	30R,30L	IFR1	1985 Decrease GA Mix	Present	A/F Development
50	ASM	30R,30L	30R,30L	IFR1	1985 Decrease GA Mix	Present	LDA Approach
51	ASM	12R,12L	12R,12L	VFR	1990 Demand and Mix	Present	A/F Development
52	ASM	12R,12L	12R,12L	IFR1	1990 Demand and Mix	Present	A/F Development
53	ASM	12R,12L	12R,12L	IFR2	1990 Demand and Mix	Present	A/F Development
54	ASM	30R,30L	30R,30L	VFR	1990 Demand and Mix	Present	A/F Development
55	ASM	30R,30L	30R,30L	IFR1	1990 Demand and Mix	Present	A/F Development
56	ASM	30R,30L	30R,30L	IFR2	1990 Demand and Mix	Present	A/F Development
57	ASM	24,30R,30L	30R,30L	IFR1	1990 Demand and Mix	Present	A/F Development
58	ASM	12R,12L	12R,12L,6	IFR1	1990 Demand and Mix	Present	A/F Development
59	ASM	12R,12L,17	12R,12L	IFR1	1990 Demand and Mix	Present	A/F Development
59a	ASM	12R,12L,17	12R,12L	VFR	1990 Demand and Mix	Present	A/F Development
60	ASM	30R,30L	30R,30L	IFR1	1990 Demand and Mix	Present	LDA Approach
61	ASM	24,30R,30L	30R,30L	IFR1	1990 Demand and Mix	Present	LDA Approach
62	ASM	12R,12L	12L,12L,6	IFR1	1990 Demand and Mix	Present	LDA Approach

Table A-1 (Continued)

REVISED DESCRIPTION OF EXPERIMENTS
Lambert-St. Louis International Airport
Airport Improvement Task Force Delay Studies

Experiment number	Model	Arrival runways	Departure runways	Weather	Demand	ATC	Improvements
63	ASM	12R,12L	12R,12L	VFR	1990 Demand and Mix	Present	Terminal Expansion
64	ASM	12R,12L	12R,12L	VFR	1990 Demand and Mix	Present	Relocate Midcoast Aviation
64a	ASM	12R,12L,17	12R,12L	VFR	1990 Demand and Mix	Present	Relocate Midcoast Aviation
65	ASM	30R,30L	30R,30L	IFR1	1990 Increase Heavy Mix	Present	A/F Development
66	ASM	24,20R,30L	30R,30L	IFR1	1990 Increase Heavy Mix	Present	A/F Development
67	ASM	30R,30L	30R,30L	IFR1	1990 Increase Heavy Mix	Present	LDA Approach
68	ASM	30R,30L	30R,30L	IFR1	1990 Decrease GA Mix	Present	A/F Development
69	ASM	24,30R,30L	30R,30L	IFR1	1990 Decrease GA Mix	Present	A/F Development
69a	ASM	24	24	IFR2	1990 Decrease GA Mix	Present	Baseline
70	ASM	30R,30L	30R,30L	IFR1	1990 Decrease GA Mix	Present	LDA Approach
71	ASM	12R,12L	12R,12L	VFR	1990 Demand and Mix	Future[c]	A/F Development
72	ASM	12R,12L	12R,12L	IFR1	1990 Demand and Mix	Future	A/F Development
73	ASM	12R,12L	12R,12L	IFR2	1990 Demand and Mix	Future	A/F Development
74	ASM	30R,30L	30R,30L	VFR	1990 Demand and Mix	Future	A/F Development
75	ASM	30R,30L	30R,30L	IFR1	1990 Demand and Mix	Future	A/F Development
76	ASM	30R,30L	30R,30L	IFR2	1990 Demand and Mix	Future	A/F Development
77	ASM	30R,30L,24	30R,30L	IFR1	1990 Demand and Mix	Future	A/F Development
78	ASM	12R,12L	12R,12L,6	IFR1	1990 Demand and Mix	Future	A/F Development
79	ASM	12R,12L,17	12R,12L	IFR1	1990 Demand and Mix	Future	A/F Development

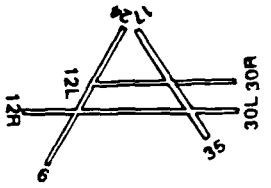
a. Airfield Simulation Model.
b. 1979 ATC Separations for VFR and IFR are taken from FAA Document 78-8A.
c. 1990 ATC Separations for VFR and IFR are taken from FAA Document 78-8A.

Table A-1a

DESCRIPTION OF EXPERIMENTS
Lambert-St. Louis International Airport
Airport Improvement Task Force Delay Studies

Experiment number	Model	Demand	Improvements	ATC
81	ADM[a]	1979 Demand and Mix	Baseline	Present[b]
81a	ADM	1979 Demand and Mix	Airfield Development	Present
82	ADM	1985 Demand and Mix	Baseline	Present
83	ADM	1985 Demand and Mix	Airfield Development	Present
84	ADM	1985 Demand and Mix	LDA Approach Procedures	Present
85	ADM	1985 Increase Heavy Mix	A/F Development	Present
86	ADM	1985 Decreased GA Mix	A/F Development	Present
87	ADM	1990 Demand and Mix	Baseline	Present
88	ADM	1990 Demand and Mix	Airfield Development	Present
89	ADM	1990 Demand and Mix	LDA Approach Procedures	Present
90	ADM	1990 Increase Heavy Mix	Airfield Development	Present
91	ADM	1990 Decreased GA Mix	Airfield Development	Present
92	ADM	1990 Demand and Mix	Airfield Development	Future[c]
93	ADM	1990 Increase Heavy Mix	Airfield Development	Future
94	ADM	1990 Decrease GA Mix	Airfield Development	Future

a. Annual Delay Model.
b. 1979 ATC Separations for VFR and IFR are taken from FAA Document 78-8A.
c. 1990 ATC Separations for VFR and IFR are taken from FAA Document 78-8A.



		1979 DEMAND 1979 MIX						1985 DEMAND 1985 MIX						INCREASE HEAV					
		BASELINE	A/F DEVELOPMENT	LDA APPROACH	NOISE ABATEMENT [2]			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION		
12	VFR	1			1A			26	35		44				35A				
	IFR1	2						27	36	41									
	IFR2+3	3						28											
30	VFR	4			4A			29											
	IFR1	5						30	38										
	IFR2+3	6						31											
24 30	VFR	7A						32A	39A										
	IFR1	7						32	39	42									
	IFR2+3																		
12 6	VFR	8																	
	IFR1	9						33	40	43									
	IFR2+3	10																	
24	VFR																		
	IFR1																		
	IFR2+3	11																	
17 12	VFR	12																	
	IFR1	13						34											
	IFR2+3																		
ANNUAL DELAY (ALL)	(ALL)	81 [2]	81A					82	83 [2]	84					85				

1. BASELINE INCLUDES PHYSICAL IMPROVEMENTS IN PLACE IN 1979 AND ADDITIONAL GA
2. SENSITIVITY ANALYSIS WITH DIFFERENT NOISE ABATEMENT SCENARIOS.
3. SENSITIVITY ANALYSIS WITH DIFFERENT LEVELS OF GENERAL AVIATION REDUCTION

LAMBERT–ST. LOUIS INTERNATIONAL AIRPORT EXPERIMENTAL DESIGN

Airport Improvement Task Force Delay Studies

Peat, Marwick, Mitchell & Co. August 1980

PRESENT ATC																														
AND									1990 DEMAND																					
EAVY			DECREASE GA						1990 MIX						INCREASE HEAVY						DECREASE GA						1990 MIX			
			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION	MIDCOAST		BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION
				35B						51		63	64			51A						51B								
										52	60																	72		
										55																				
										57A																				
										57	61																			
										58	62																			
														64A																
				86[3]					87	88[2]	89					90						91[3]						92		

AL GATES NECESSARY TO ACCOMODATE FUTURE DEMAND.

TIONS.

NTAL DESIGN

										FUTURE ATC																	
DEMAND										1990 DEMAND																	
EASE HEAVY				DECREASE GA						1990 MIX						INCREASE HEAVY						DECREASE GA					
LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION		
					51B																						
											72																
					91[3]						92						93						94				

Attachment B

SUMMARY OF RESULTS OF ANNUAL DELAY MODEL EXPERIMENTS

Table B-1

SUMMARY OF ANNUAL DELAY MODEL EXPERIMENTS
Lambert-St. Louis International Airport

Experiment No.	Demand[a]	ATC scenario	Description	Annual delay (hours)	Average aircraft delay (minutes)
81	1979[b]	1979	Baseline	4,722[c]	0.8[c]
81n	1979	1979	Noise abatement	5,708	1.0
81A	1979	1979	Airfield development	4,746	0.8
82	1985	1979	Baseline	9,399	1.6
83	1985	1979	Airfield development	7,522	1.3
	1985	1979	Airfield development and new runway use	6,150	1.1
83n	1985	1979	Noise abatement	10,010	1.8
84	1985	1979	LDA approach	6,792	1.2
85	1985	1979	Increased heavy jets	8,464	1.5
86	1985	1979	25% reduction in general aviation	5,604	1.0
	1985	1979	50% reduction in general aviation	4,100	0.8
	1985	1979	75% reduction in general aviation	3,208	0.7
87	1990	1979	Baseline	40,273	6.5
88	1990	1979	Airfield development	27,542	4.4
	1990	1979	Airfield development and new runway use	12,234	2.0
88n	1990	1979	Noise abatement	35,586	5.7
89	1990	1979	LDA approach	25,267	4.1
90	1990	1979	Increased heavy jets	26,661	4.7
91	1990	1979	25% reduction in general aviation	17,309	2.9
	1990	1979	50% reduction in general aviation	13,007	2.3
	1990	1979	75% reduction in general aviation	11,247	2.2
92	1990	Future	Airfield development	18,337	2.9
93	1990	Future	Increased heavy jets	12,274	2.2
94	1990	Future	50% reduction in general aviation	8,561	1.5

a. Annual demand: 1979 = 344,600
1985 = 344,000 (unconstrained)
= 336,000 (increased heavy jets)
= 322,750 (25% reduction in general aviation)
= 301,500 (50% reduction in general aviation)
= 280,250 (75% reduction in general aviation)
1990 = 374,000 (unconstrained)
= 339,000 (increased heavy jets)
= 354,000 (25% reduction in general aviation)
= 334,000 (50% reduction in general aviation)
= 314,000 (75% reduction in general aviation)

b. Annual demand for 1979 assumes no Ozark Air Lines strike. The actual demand was 336,378 with the Ozark Air Lines strike.

c. Actual delays in 1979 may be lower than this value because of the Ozark Air Lines strike.

Table B-2

COMPARISON OF ANNUAL DELAY RESULTS FOR VARIOUS IMPROVEMENT OPTIONS

Improvement options	Average annual aircraft delays (minutes per aircraft) 1979	Post-1985	Post-1990
1979 airfield	0.8	1.6	6.5
Airfield development	--	1.3	4.4
LDA approach[a]	--	1.2	4.1
New runway use[a]	--	1.1	2.0
General aviation reduction[a]			
25%	--	1.0	2.9
50%	--	0.8	2.3
75%	--	0.7	2.2
Increase heavy jets[a]	--	1.5	4.7
Future ATC system[a]	--	--	2.9
Future ATC system and increase heavy jets[a]	--	--	2.2
Future ATC system and 50% general aviation reduction[a]	--	--	1.5

a. Includes airfield development.

Source: Peat, Marwick, Mitchell & Co.

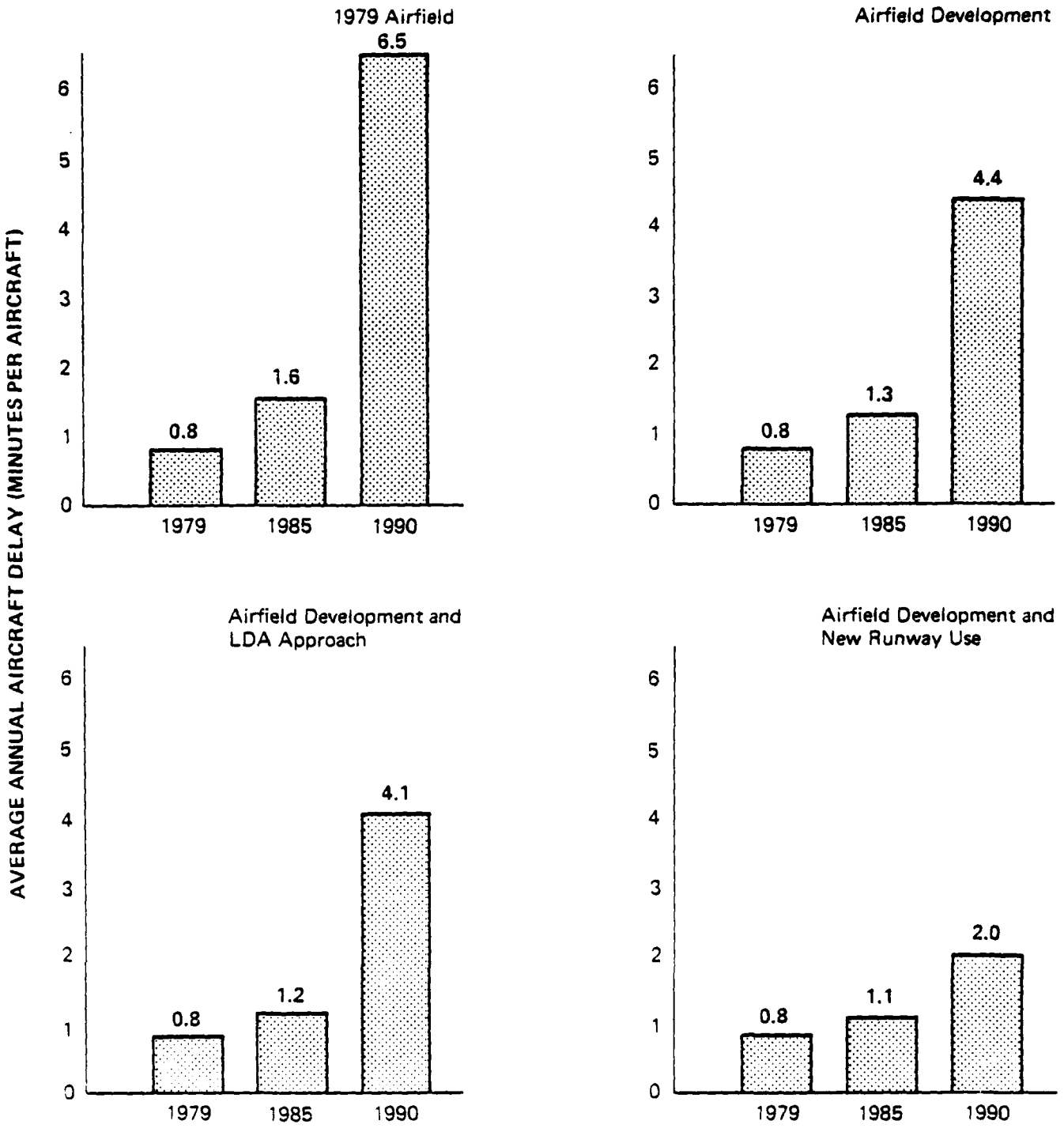


Exhibit B–1 ANNUAL DELAY EXPERIMENT RESULTS

Attachment C

SUMMARY OF RESULTS OF AIRFIELD SIMULATION MODEL EXPERIMENTS

Table C-1

SUMMARY OF SIMULATION EXPERIMENT RESULTS
Lambert-St. Louis International Airport

Experiment No.	Runway use		Flow rates						Runway delays (minutes)			
			Average daily			Peak hour[a]			Average daily		Peak hour[a]	
	Arrival	Departure	Arrival	Departure	Total	Arrival	Departure	Total	Arrival	Departure	Arrival	Departure
1	12R, 12L	12R, 12L	30.9	31.0	61.9	49.0	33.3	82.3	0.30	1.24	0.51	2.37
1-Noise 1	12R, 12L	12R, 12L	30.9	31.0	61.9	49.0	32.8	81.8	0.29	1.23	0.43	2.50
1-Noise 2	12R, 12L	12R, 12L	30.9	31.0	61.9	40.0	47.0	87.0	0.29	1.76	0.47	3.05
1-Noise 3	12R, 12L	12R, 12L	30.9	31.0	61.9	41.1	29.0	70.1	0.29	6.39	0.16	17.06
2	12R, 12L	12R, 12L	27.3	27.7	55.0	29.7	32.9	62.6	16.71	2.20	41.93	2.34
3	12R, 12L	12R, 12L	24.0	25.3	49.3	26.0	30.6	56.6	8.39	6.83	26.64	12.87
4	30R, 30L	30R, 30L	30.9	31.0	61.9	49.0	32.2	81.2	0.32	1.22	0.56	2.48
4-Noise 1	30R, 30L	30R, 30L	30.9	31.0	61.9	49.0	32.2	81.2	0.29	1.29	0.45	3.50
4-Noise 2	30R, 30L	30R, 30L	30.9	31.0	61.9	49.0	31.5	80.5	0.29	1.71	0.43	3.65
4-Noise 3	30R, 30L	30R, 30L	30.9	31.0	61.9	29.0	40.6	69.6	0.30	5.95	0.17	15.63
5	30R, 30L	30R, 30L	27.2	27.8	55.0	29.6	32.0	61.6	17.32	2.05	42.98	2.41
6	30R, 30L	30R, 30L	23.9	25.3	49.2	26.0	30.2	56.2	9.51	7.56	28.39	13.87
7A	30R, 30L, 24	30R, 30L	30.9	31.0	61.9	39.9	47 6	87.5	0.33	1.18	0.74	1.95
7	30R, 30L, 24	30R, 30L	27.2	27.8	55.0	30.0	37.2	67.2	1.29	2.59	5.79	2.39
8	12R, 12L	12R, 12L, 6	31.0	31.0	62.0	49.0	33.9	82.9	0.44	0.61	0.58	1.29
9	12R, 12L	12R, 12L, 6	27.3	27.7	55.0	29.4	31.8	61.2	16.72	0.29	41.76	0.36
10	12R, 12L	12R, 12L, 6	24.0	25.3	49.3	29.0	35.4	64.4	3.76	1.60	8.13	3.58
11	24	24	23.8	24.7	48.5	26.1	24.4	50.5	19.30	16.32	55.18	20.79
12	12R, 12L, 17	12R, 12L	30.9	31.0	61.9	39.5	47.2	86.7	0.30	1.30	0.46	2.35
13	12R, 12L, 17	12R, 12L	27.3	27.8	55.1	31.0	33.7	64.7	11.77	2.31	31.84	2.63
26	12R, 12L	12R, 12L	30.7	30.9	61.6	31.4	41.6	73.0	0.91	2.10	1.71	4.43
27	12R, 12L	12R, 12L	27.7	28.2	55.9	29.2	27.5	56.7	25.71	3.04	60.87	1.66
28	12R, 12L	12R, 12L	25.2	26.0	51.2	25.5	28.5	54.0	18.84	8.21	49.77	13.15
29	30R, 30L	30R, 30L	30.7	30.9	61.6	37.0	38.9	75.9	0.92	2.10	1.40	4.05
30	30R, 30L	30R, 30L	27.8	28.3	56.1	30.3	30.0	60.3	25.12	3.11	56.74	2.97
31	30R, 30L	30R, 30L	25.1	25.9	51.0	25.1	27.9	53.0	19.22	8.83	48.25	13.71
32A	30R, 30L, 24	30R, 30L	30.8	31.1	61.9	32.2	40.9	73.1	0.83	2.26	2.20	4.59
32	30R, 30L, 24	30R, 30L	28.1	28.7	56.8	31.5	37.5	69.0	3.98	5.00	14.79	11.81
33	12R, 12L	12R, 12L, 6	27.8	28.3	56.1	28.5	29.0	57.5	25.70	0.54	59.39	0.44
34	12R, 12L, 17	12R, 12L	28.1	28.6	56.7	29.8	32.2	62.0	18.71	3.32	42.54	6.25

a. The peak hour varies from experiment to experiment.

Table C-1 (Continued)
SUMMARY OF SIMULATION EXPERIMENT RESULTS
Lambert-St. Louis International Airport

Experiment No.	Runway use		Flow rates						Runway delays (minutes)			
			Average daily			Peak hour[a]			Average daily		Peak hour[a]	
	Arrival	Departure	Arrival	Departure	Total	Arrival	Departure	Total	Arrival	Departure	Arrival	Departure
35	12R, 12L	12R, 12L	30.8	31.0	61.8	41.8	44.6	86.4	0.77	2.21	1.27	4.14
35G	12R, 12L	12R, 12L	30.8	30.8	61.6	31.2	42.4	73.6	0.50[b]	1.00[c]	0.80[b]	1.40[c]
35A	12R, 12L	12R, 12L	30.1	30.1	60.2	29.0	40.8	69.8	0.85	2.10	1.26	4.68
35B	12R, 12L	12R, 12L	28.6	29.0	57.6	40.9	43.3	84.2	0.56	1.74	0.80	3.27
36	12R, 12L	12R, 12L	28.0	28.4	56.4	29.0	28.0	57.0	25.80	0.49	59.33	0.34
38	30R, 30L	30R, 30L	27.9	28.3	56.2	28.5	28.2	56.7	26.12	0.46	60.16	0.38
39A	30R, 30L, 24	30R, 30L	30.7	30.9	61.6	38.2	47.3	85.5	0.67	2.54	1.26	5.35
39	30R, 30L, 24	30R, 30L	28.0	28.5	56.5	41.7	40.1	81.8	1.95	1.85	3.65	2.74
40	12R, 12L	12R, 12L, 6	27.8	28.3	56.1	28.5	27.3	55.8	26.52	0.25	62.37	0.17
41	12R, 12L	12R, 12L	28.1	28.5	56.6	30.4	41.1	71.5	1.20	2.78	1.71	7.15
42	30R, 30L, 24	30R, 30L	28.1	28.5	56.6	40.2	41.4	81.6	1.03	2.29	2.49	3.86
43	12R, 12L	12R, 12L, 6	28.1	28.5	56.6	39.6	44.5	84.1	1.25	0.71	2.54	1.25
44	12R, 12L	12R, 12L	30.8	30.8	61.6	31.8	41.6	73.4	0.30[b]	0.90[c]	1.00[b]	1.20[c]
51	12R, 12L	12R, 12L	33.7	33.7	67.4	38.9	47.2	86.1	1.78	3.08	4.51	6.42
51A	12R, 12L	12R, 12L	30.4	30.6	61.0	35.7	41.5	77.2	1.96	3.12	4.68	6.32
51B	12R, 12L	12R, 12L	31.2	31.4	62.6	32.4	40.8	73.2	1.23	2.50	2.43	4.68
52	12R, 12L	12R, 12L	28.0	29.8	57.8	28.2	26.9	55.1	60.59	0.79	141.92	0.47
55	30R, 30L	30R, 30L	28.0	29.6	57.6	27.8	26.4	54.2	60.15	0.74	141.44	0.45
57A	30R, 30L, 24	30R, 30L	33.7	33.8	67.5	37.6	44.9	82.5	1.50	4.47	8.24	11.22
57	30R, 30L, 24	30R, 30L	31.3	31.5	62.8	35.0	43.5	78.5	5.29	2.73	12.08	6.36
58	12R, 12L	12R, 12L, 6	28.1	29.7	57.8	28.5	25.8	54.3	59.68	0.30	140.65	0.26
60	12R, 12L	12R, 12L	31.3	31.5	62.8	34.7	41.7	76.4	2.63	5.63	5.92	14.95
61	30R, 30L, 24	30R, 30L	31.3	31.6	62.9	34.6	45.8	80.4	2.11	4.25	4.13	11.12
62	12R, 12L	12R, 12L, 6	31.3	31.5	62.8	45.3	50.0	95.3	2.41	1.30	5.15	2.51
63	12R, 12L	12R, 12L	33.6	33.6	67.2	45.6	44.1	89.7	0.4[b]	1.50[c]	1.20[b]	2.10[c]
64	12R, 12L	12R, 12L	33.6	33.6	67.2	36.5	47.5	84.0	1.57	3.05	4.91	6.77
64A	12R 12L, 17	12R, 12L	33.6	33.6	67.2	38.4	45.1	83.5	1.43	2.89	2.57	6.49
72	12R, 12L	12R, 12L	31.2	31.3	62.5	32.9	27.3	60.2	21.81	0.65	57.12	0.50

a. The peak hour varies from experiment to experiment.
b. Taxi-in delays.
c. Taxi-out delays.

Lambert-St. Louis International Airport Experiments

Experiment No. 1

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

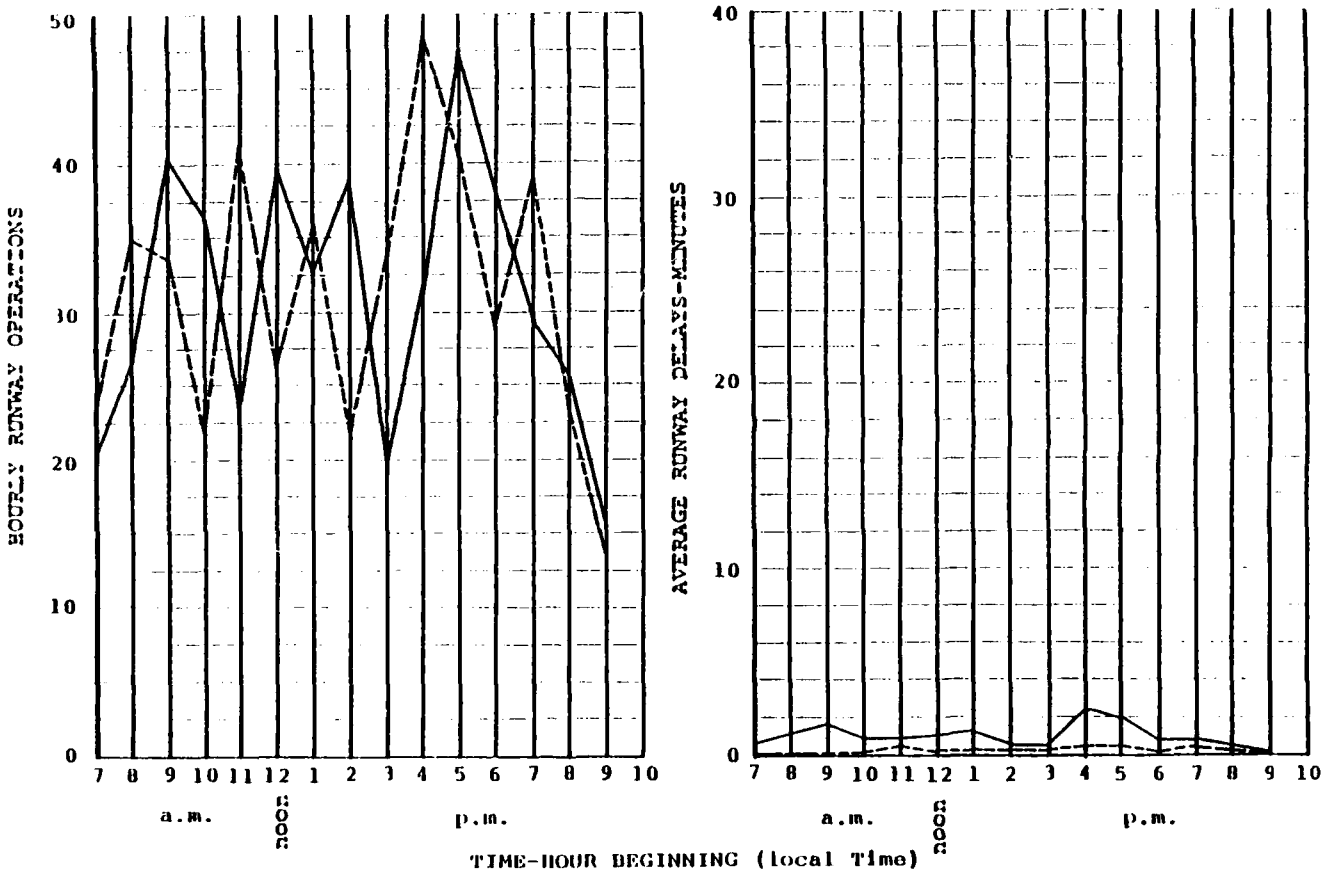
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1600-1700 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.9	49.0
Arrival	Air delay	minute	0.3	0.5
Departure	Flow rate	a/c per hr	31.0	33.3
Departure	Runway delay	minute	1.2	2.4

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 1

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 1 - Noise 1

Scenario:

This experiment is used to evaluate the effect of noise abatement procedures on aircraft delays. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

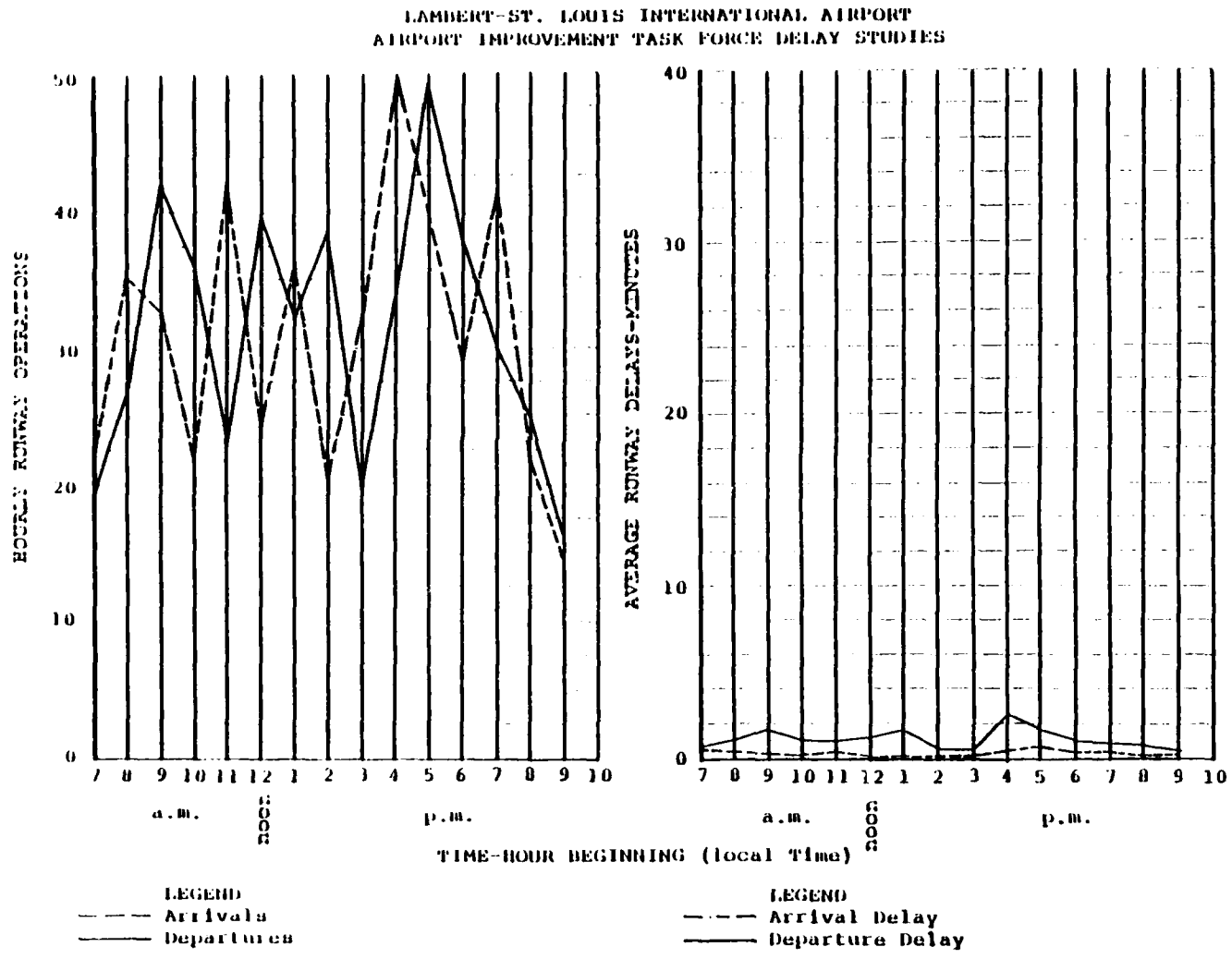
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.9	49.0
Arrival	Air delay	minute	0.3	0.4
Departure	Flow rate	a/c per hr	31.0	32.8
Departure	Runway delay	minute	1.2	2.5



VFR Noise Scenario 1

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 1 - Noise 2

Scenario:

This experiment is used to evaluate the effect of noise abatement procedures on aircraft delays. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

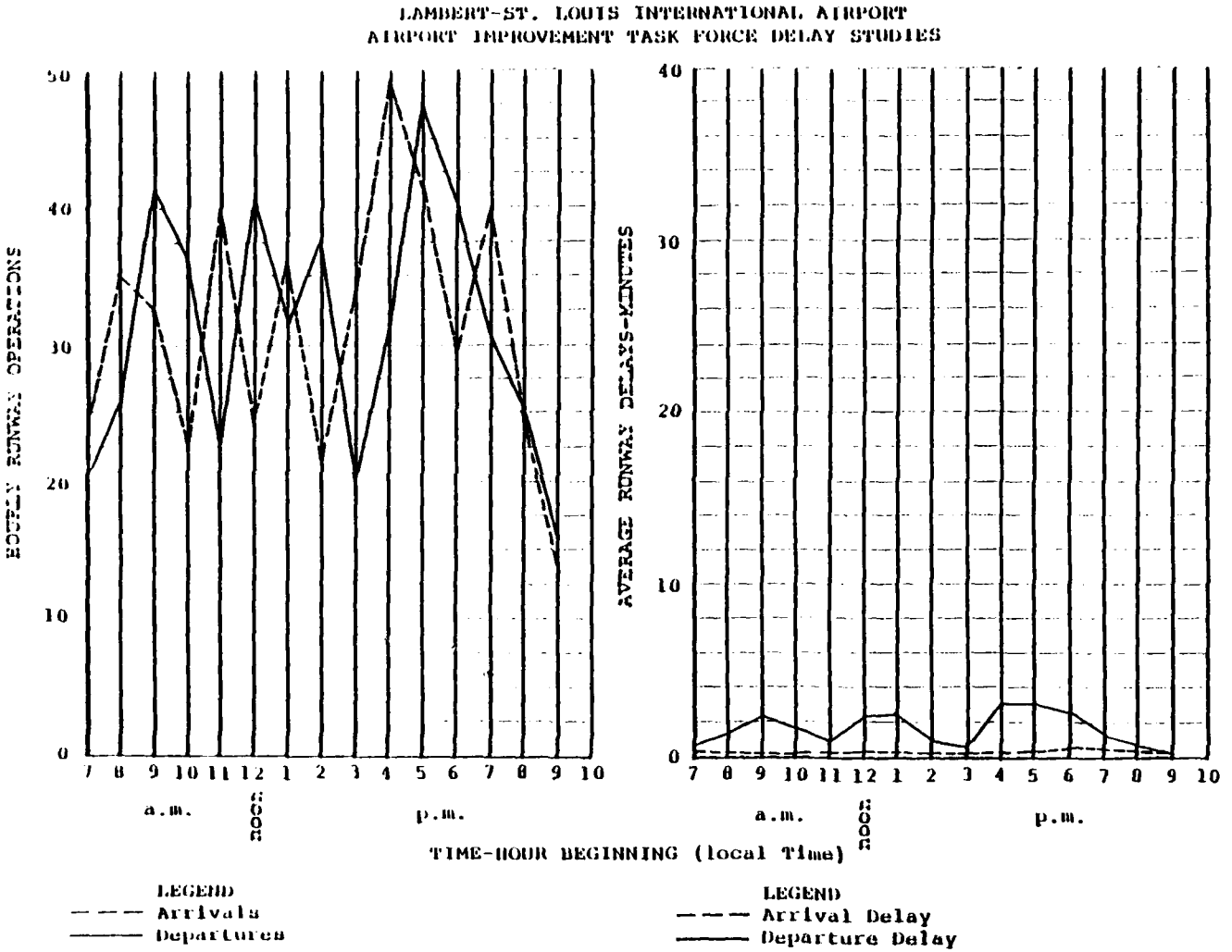
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.9	40.0
Arrival	Air delay	minute	0.3	0.5
Departure	Flow rate	a/c per hr	31.0	47.0
Departure	Runway delay	minute	1.8	3.1



VFR Noise Scenario 2

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 1 - Noise 3

Scenario:

This experiment is used to evaluate the effect of noise abatement procedures on aircraft delays. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

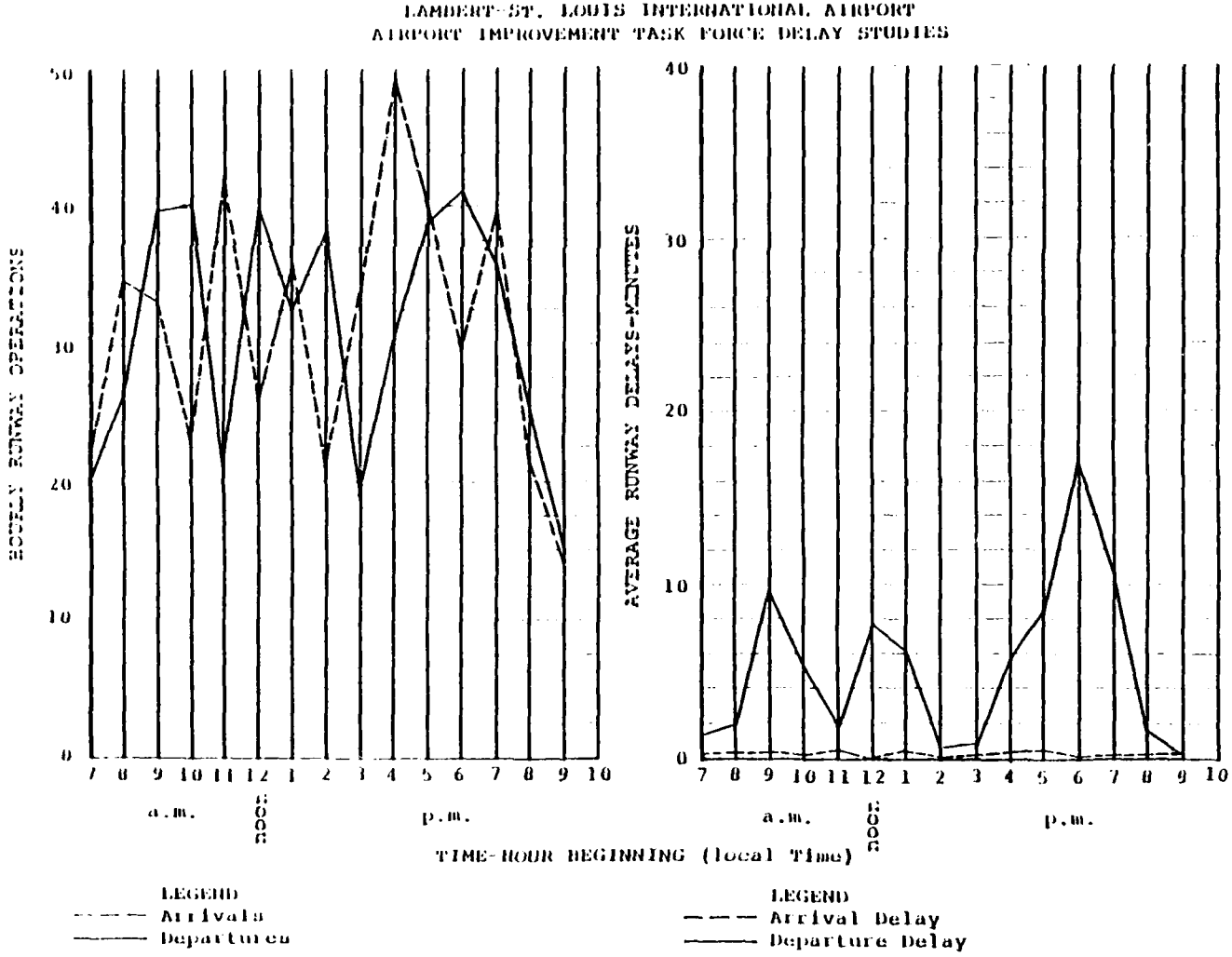
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.9	41.1
Arrival	Air delay	minute	0.3	0.2
Departure	Flow rate	a/c per hr	31.0	29.0
Departure	Runway delay	minute	6.4	17.1



VFR Noise Scenario 3

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 2

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

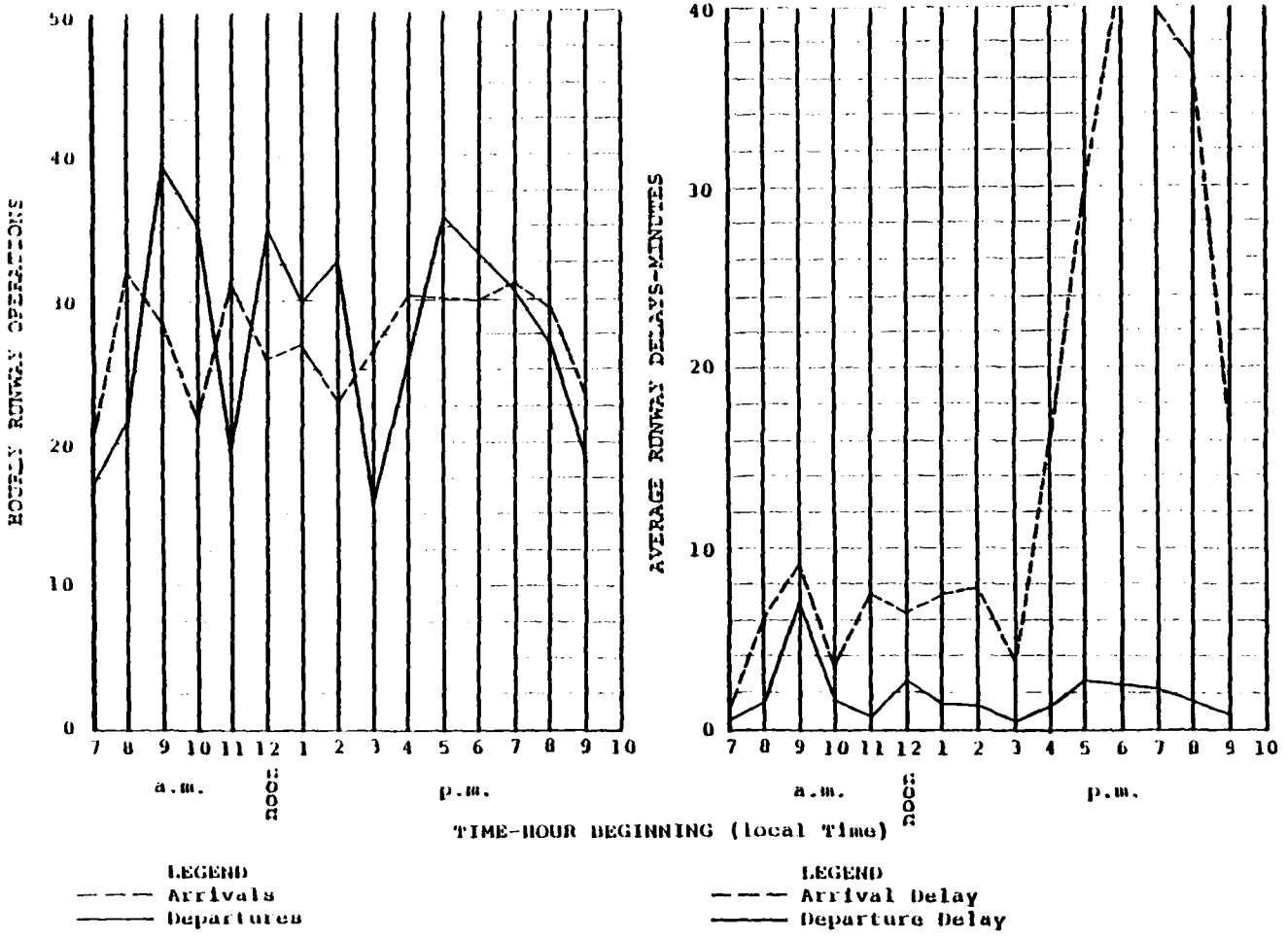
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	27.3	29.7
Arrival	Air delay	minute	16.7	41.9
Departure	Flow rate	a/c per hr	27.7	32.9
Departure	Runway delay	minute	2.2	2.3

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 2

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 3

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in IFR2 and IFR3 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

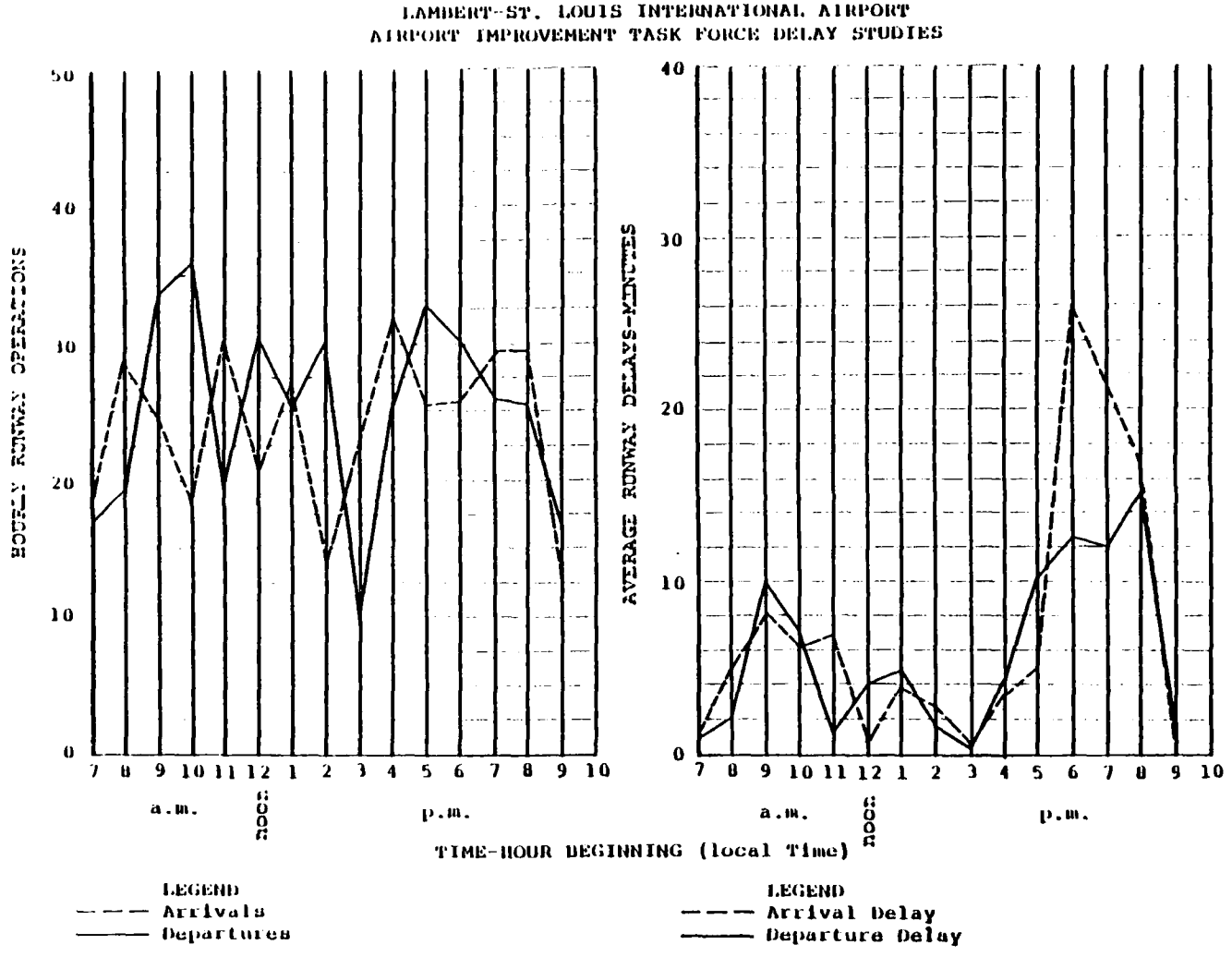
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	24.0	26.0
Arrival	Air delay	minute	8.4	26.6
Departure	Flow rate	a/c per hr	25.3	30.6
Departure	Runway delay	minute	6.8	12.9



Experiment 3

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
IFR 2+3 BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 4

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

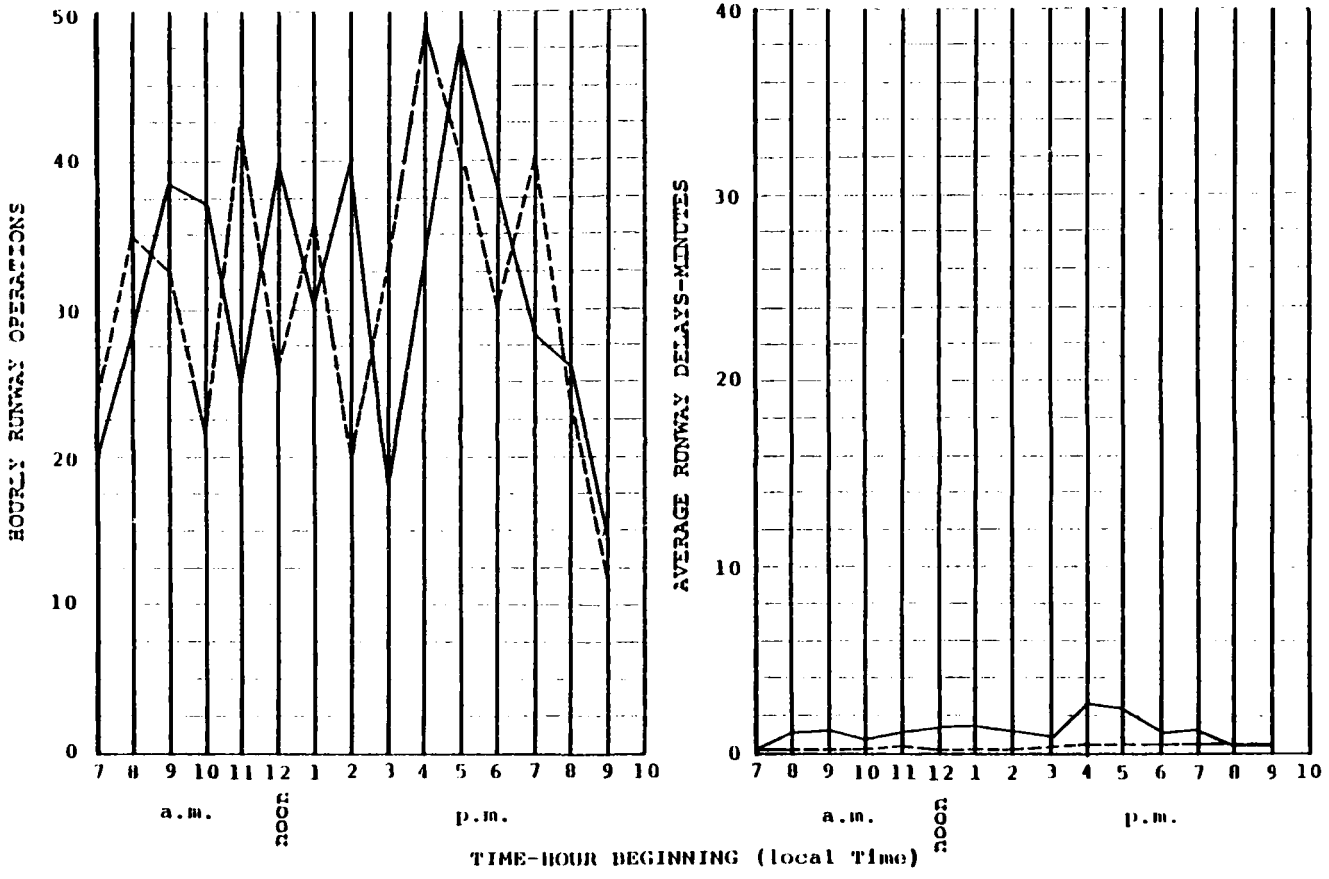
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.9	49.0
Arrival	Air delay	minute	0.3	0.6
Departure	Flow rate	a/c per hr	31.0	32.2
Departure	Runway delay	minute	1.2	2.5

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 4

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L
VFR BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 4 - Noise 1

Scenario:

This experiment is used to evaluate the effect of noise abatement procedures on aircraft delays. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

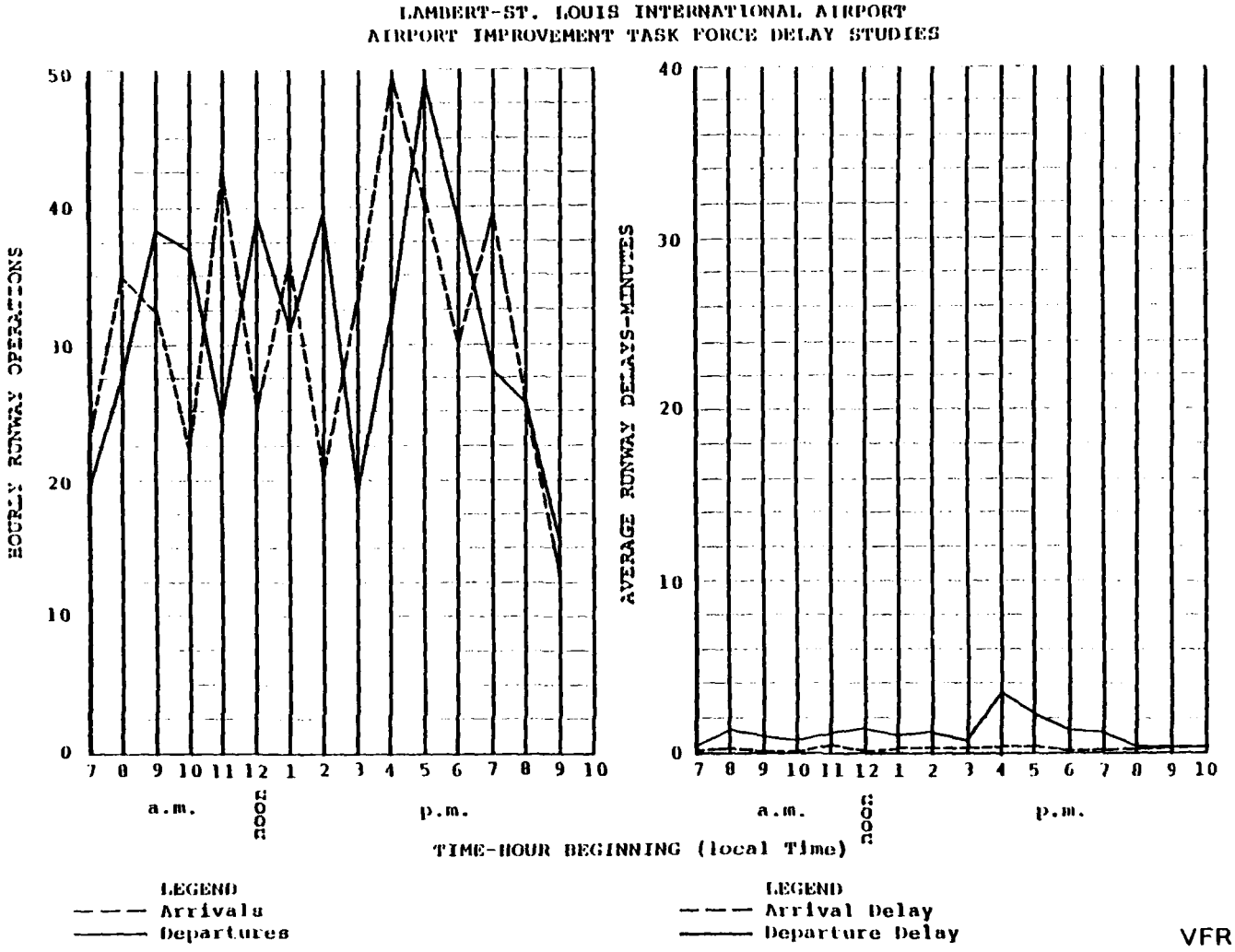
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.9	40.0
Arrival	Air delay	minute	0.3	0.5
Departure	Flow rate	a/c per hr	31.0	49.0
Departure	Runway delay	minute	1.3	2.3



VFR Noise Scenario 1

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 4 - Noise 2

Scenario:

This experiment is used to evaluate the effect of noise abatement procedures on aircraft delays. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

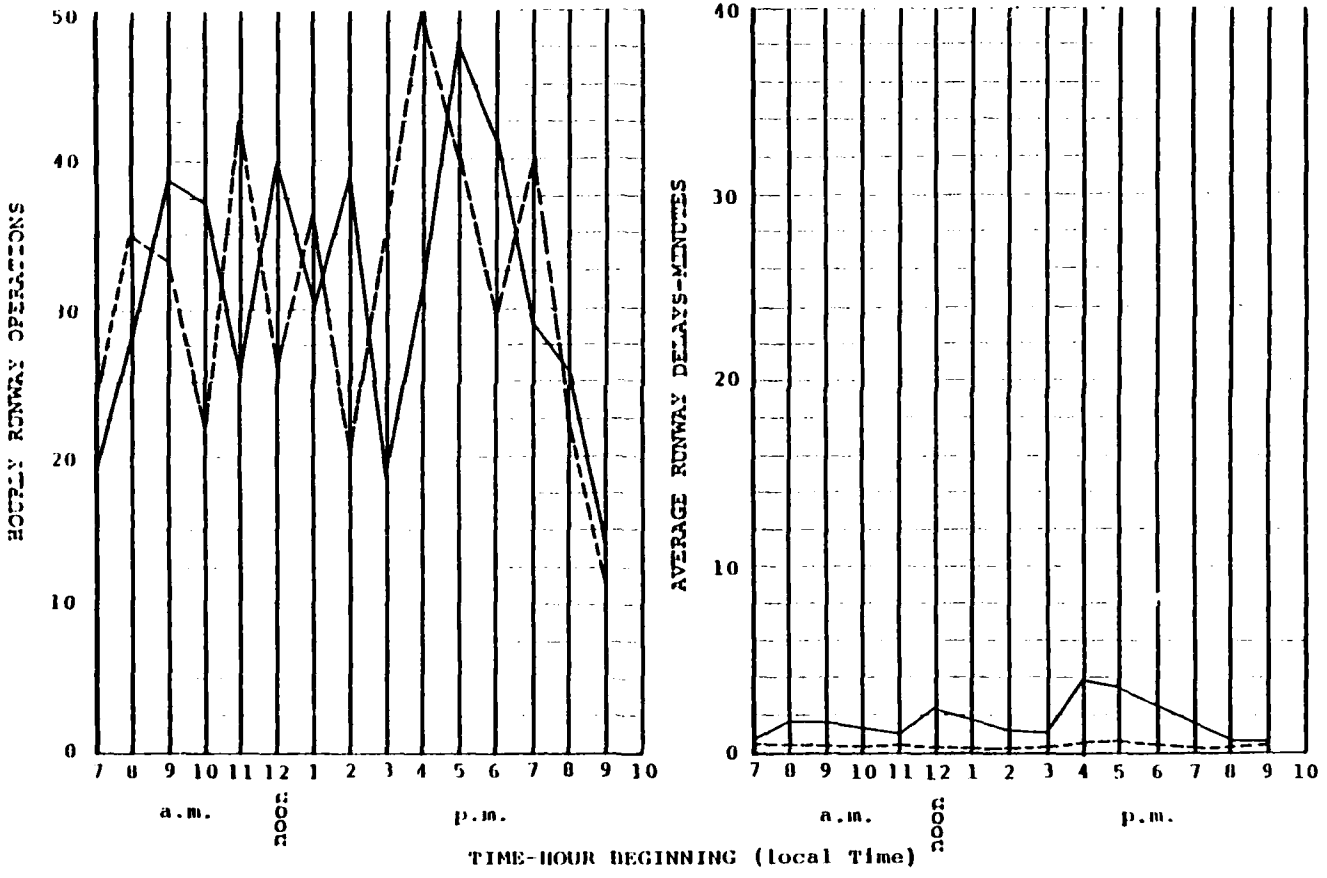
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.9	40.0
Arrival	Air delay	minute	0.3	0.5
Departure	Flow rate	a/c per hr	31.0	47.3
Departure	Runway delay	minute	1.7	3.2

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



VFR Noise Scenario 2

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 4 - Noise 3

Scenario:

This experiment is used to evaluate the effect of noise abatement procedures on aircraft delays. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

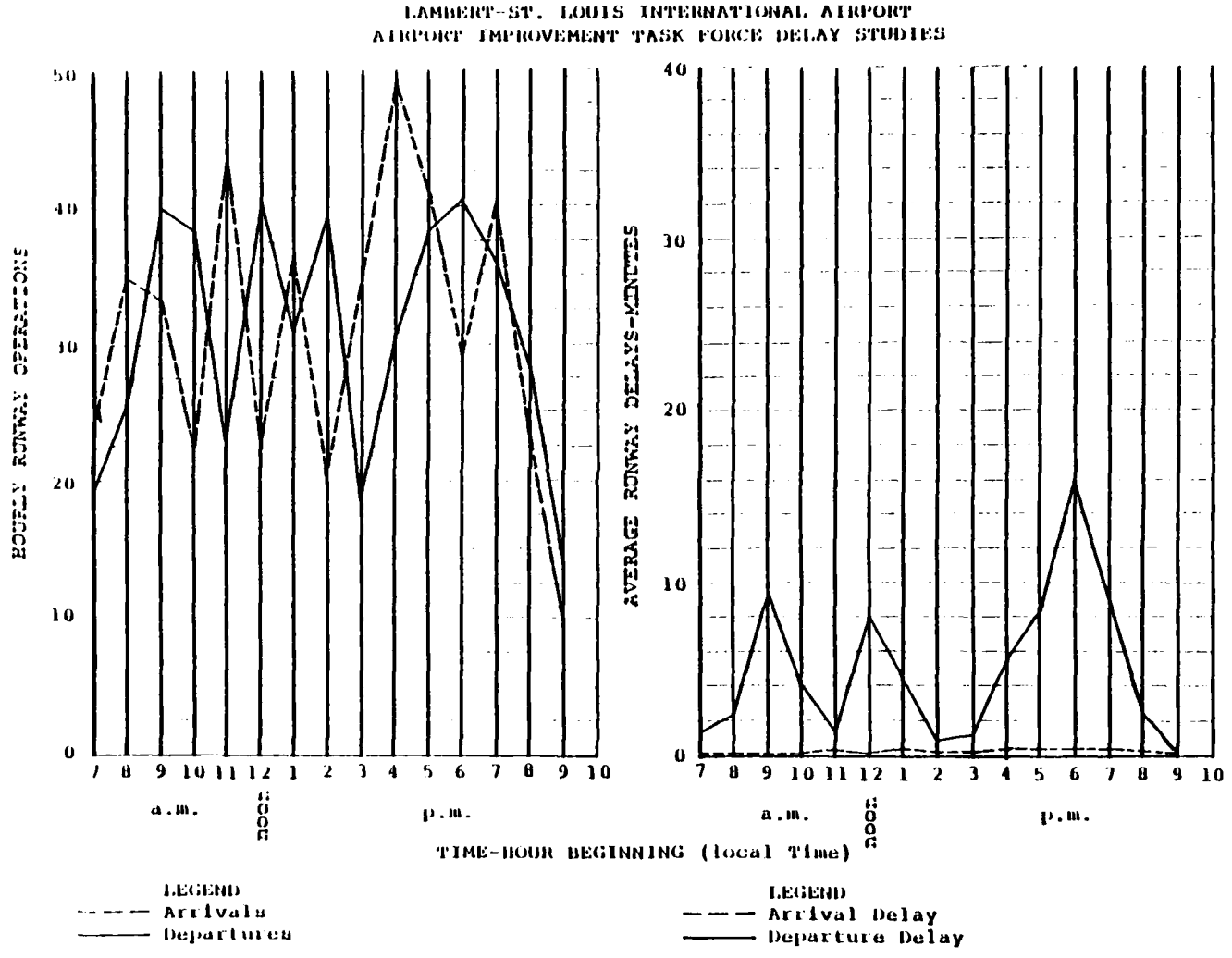
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.9	40.0
Arrival	Air delay	minute	0.3	0.5
Departure	Flow rate	a/c per hr	31.0	38.7
Departure	Runway delay	minute	6.0	9.0



VFR Noise Scenario 3

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 5

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

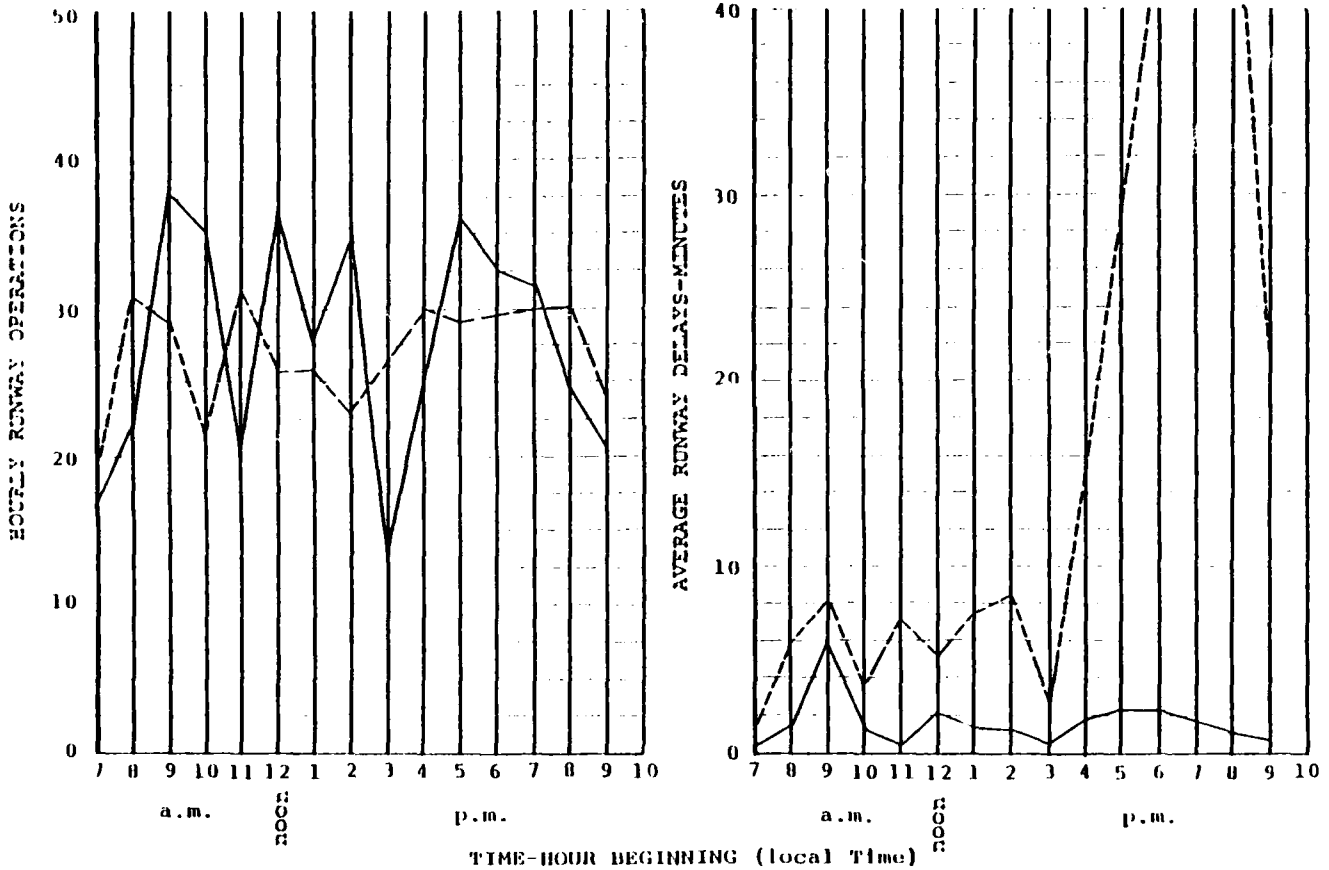
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	27.2	29.6
Arrival	Air delay	minute	17.3	43.0
Departure	Flow rate	a/c per hr	27.8	32.0
Departure	Runway delay	minute	2.1	2.4

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 5

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L
IFR1 BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 6

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in IFR2 and IFR3 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

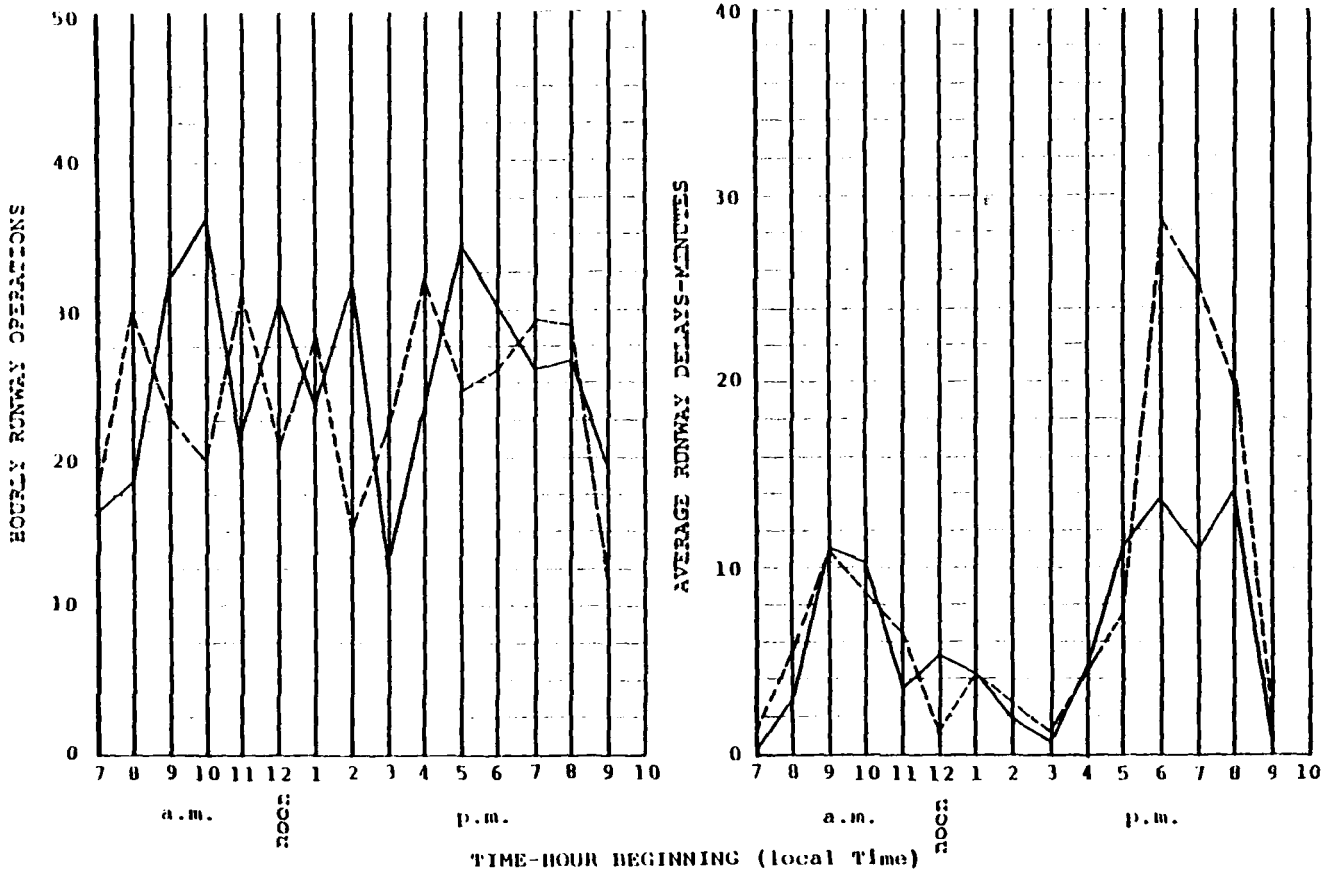
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	23.9	26.0
Arrival	Air delay	minute	9.5	28.4
Departure	Flow rate	a/c per hr	25.3	30.2
Departure	Runway delay	minute	7.6	13.9

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 6

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L
IFR 2+3 BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 7A

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L, 24	30R, 30L

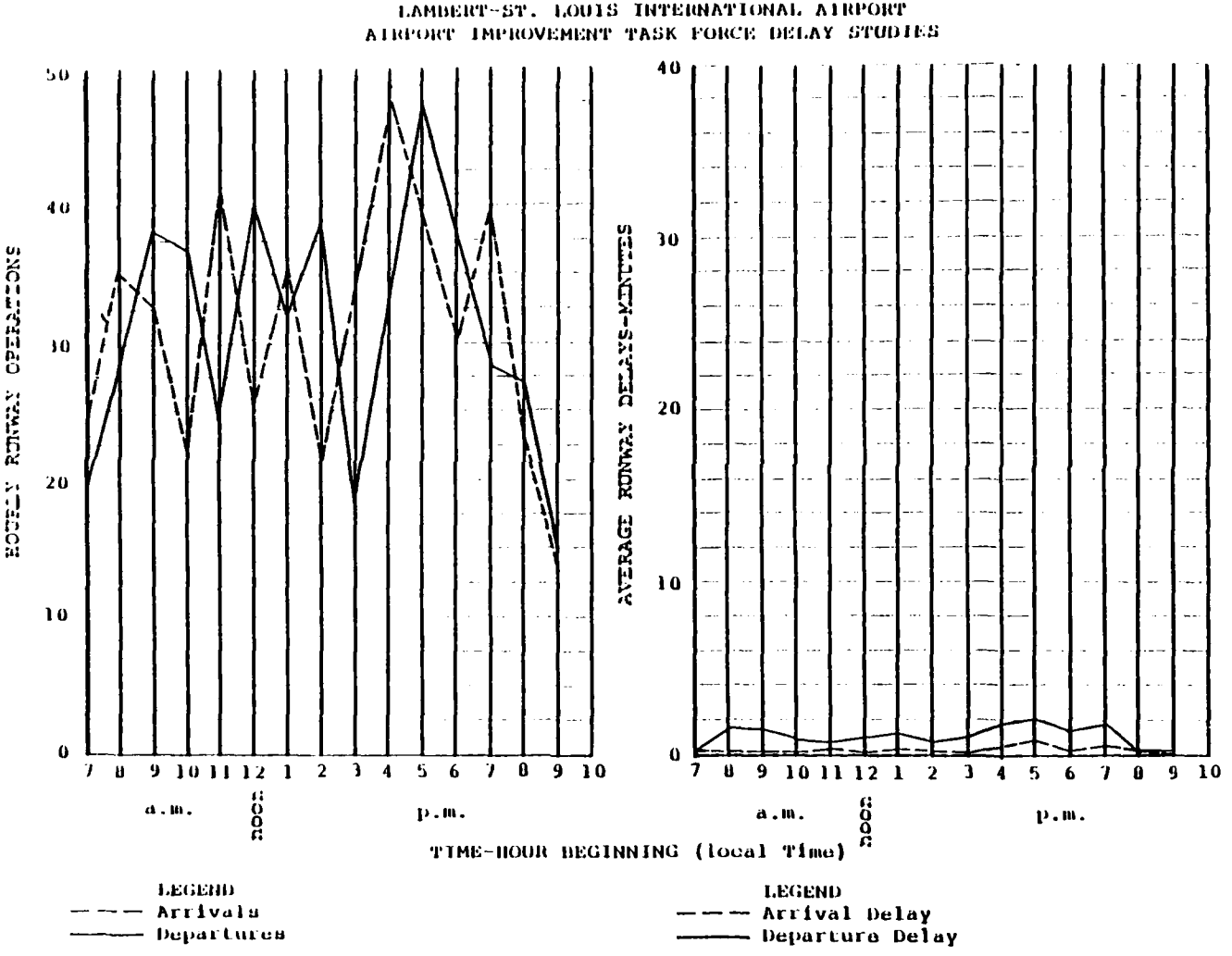
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.9	39.9
Arrival	Air delay	minute	0.3	0.7
Departure	Flow rate	a/c per hr.	31.0	47.6
Departure	Runway delay	minute	1.2	2.0



Experiment 7A

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L, AND 24
DEPARTURES ON 30R, 30L
VFR BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 7

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L, 24	30R, 30L

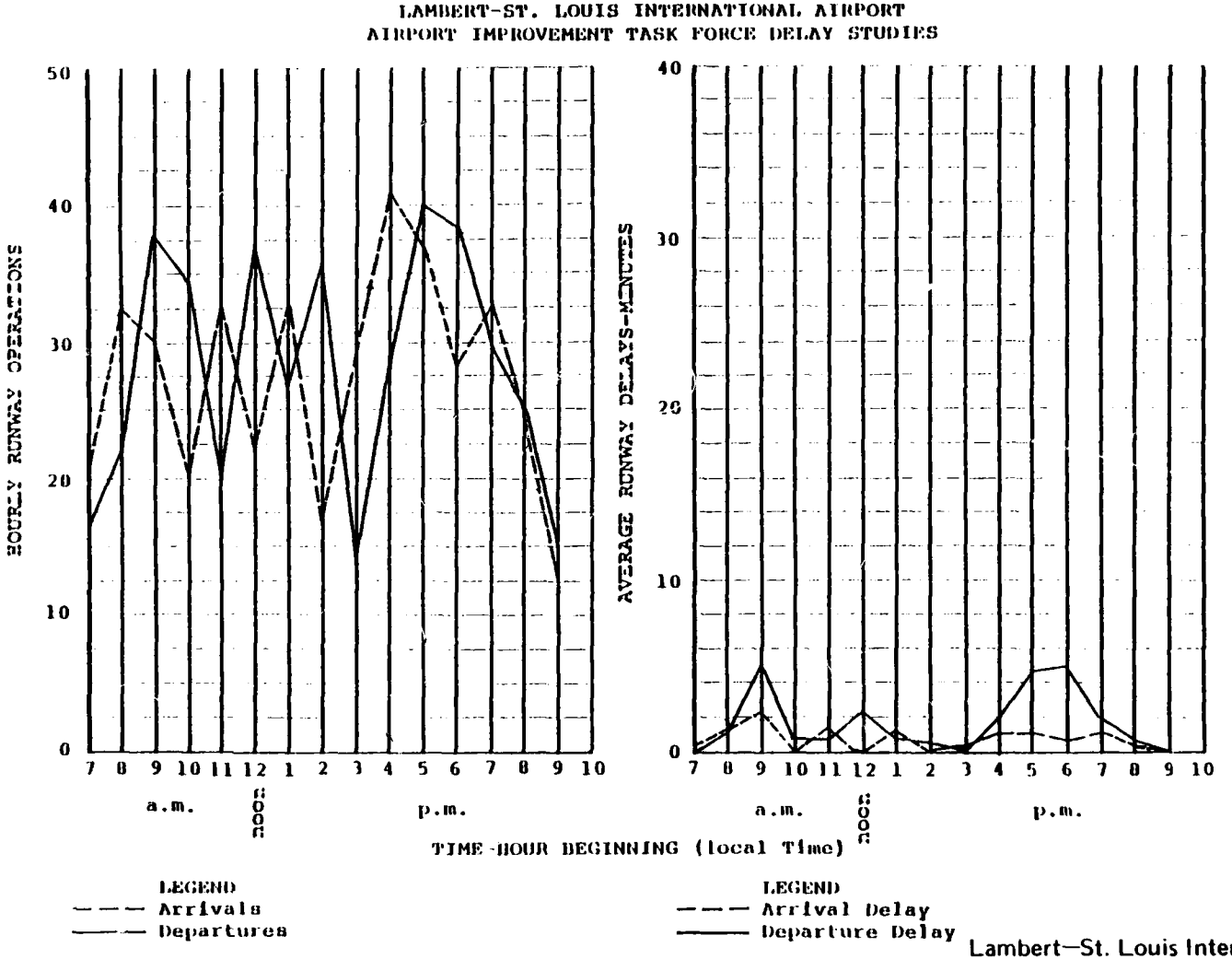
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	27.2	36.8
Arrival	Air delay	minute	1.3	1.6
Departure	Flow rate	a/c per hr	27.8	39.6
Departure	Runway delay	minute	2.6	5.0



Experiment 7

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L, AND 24
DEPARTURES ON 30R, 30L
IFR1 BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 8

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L, 6

Length and Level of Detail of Simulation Run:

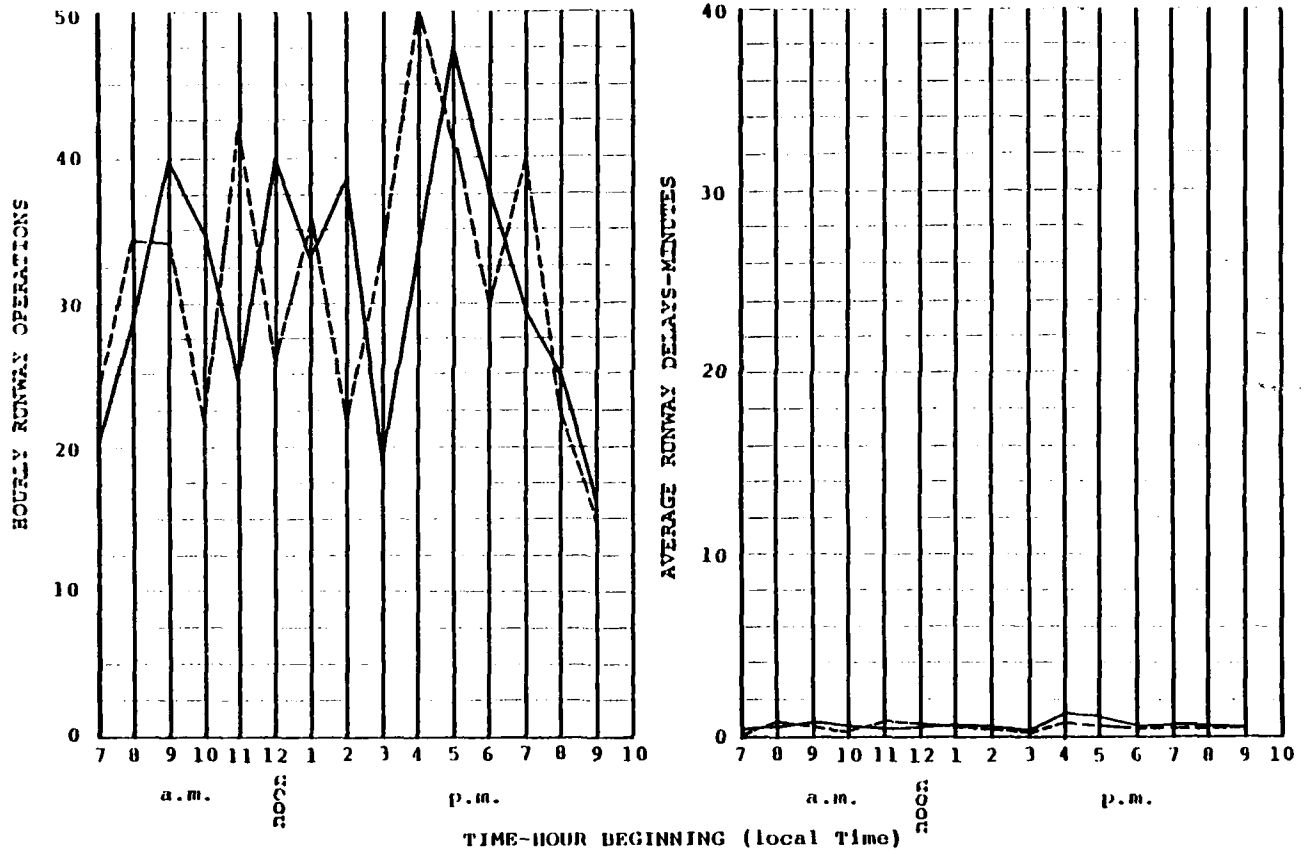
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1600-1700 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	31.0	49.0
Arrival	Air delay	minute	0.4	0.6
Departure	Flow rate	a/c per hr	31.0	33.9
Departure	Runway delay	minute	0.6	1.3

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 8

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L, AND 6
VFR BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 9

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L, 6

Length and Level of Detail of Simulation Run:

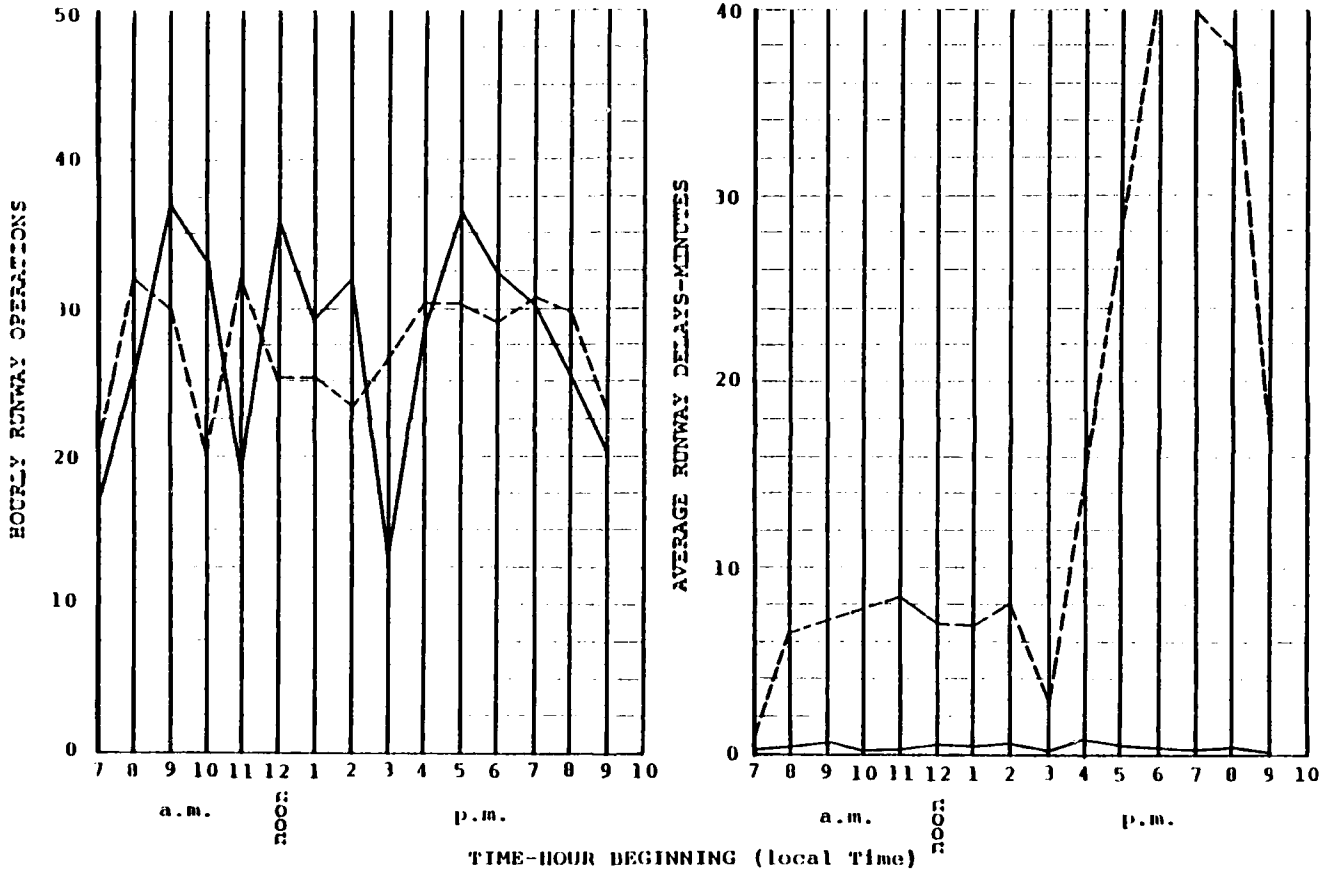
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	27.3	29.4
Arrival	Air delay	minute	16.7	41.8
Departure	Flow rate	a/c per hr	27.7	31.8
Departure	Runway delay	minute	0.3	0.4

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 9

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L, AND 6
IFR1 BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 10

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in IFR2 and IFR3 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L, 6

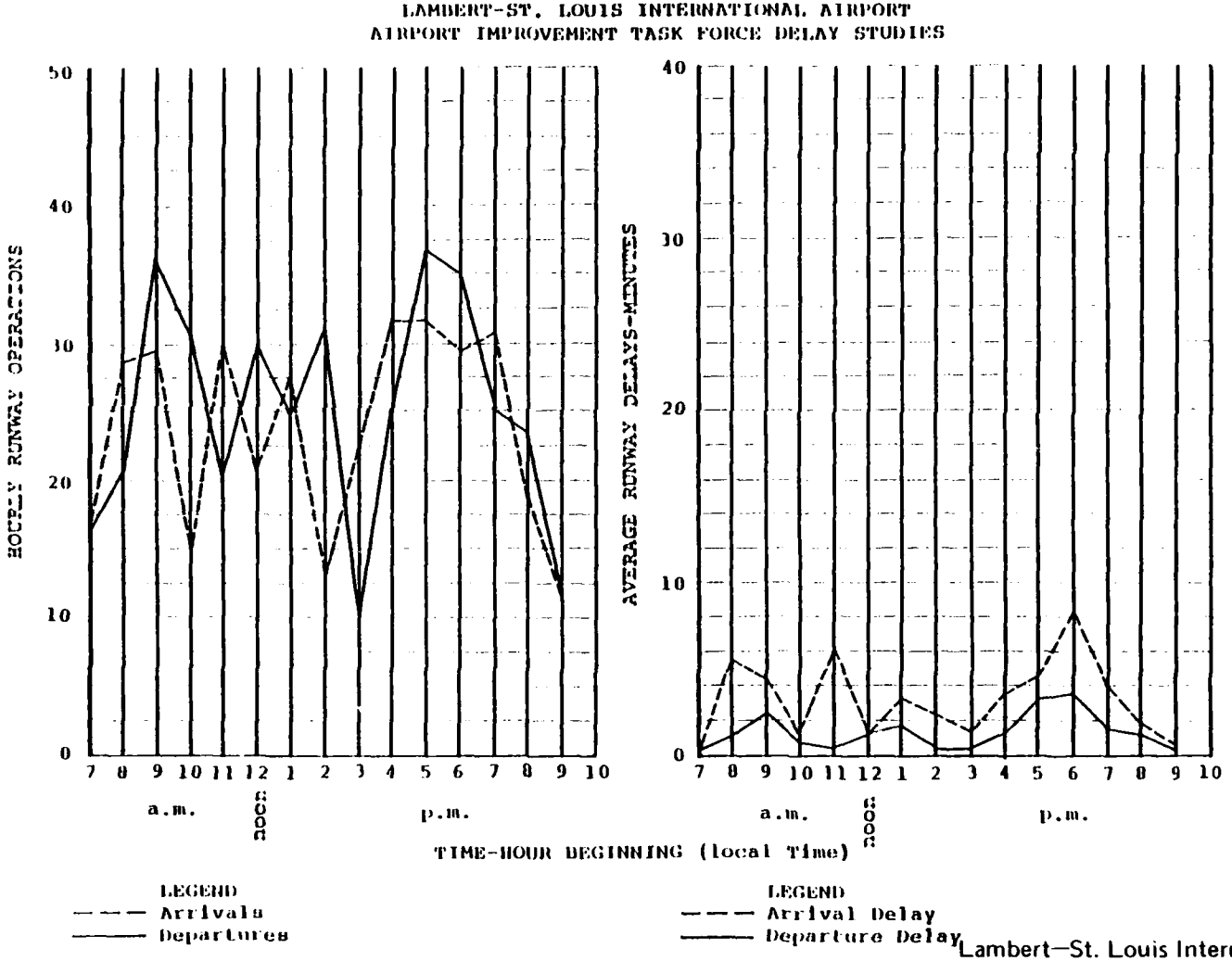
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	24.0	29.0
Arrival	Air delay	minute	3.8	8.1
Departure	Flow rate	a/c per hr	25.3	35.4
Departure	Runway delay	minute	1.6	3.6



Experiment 10

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L, AND 6
IFR 2+3 BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 11

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in IFR2 and IFR3 conditions for the following runway configuration:

Arrival runways	Departure runways
24	24

Length and Level of Detail of Simulation Run:

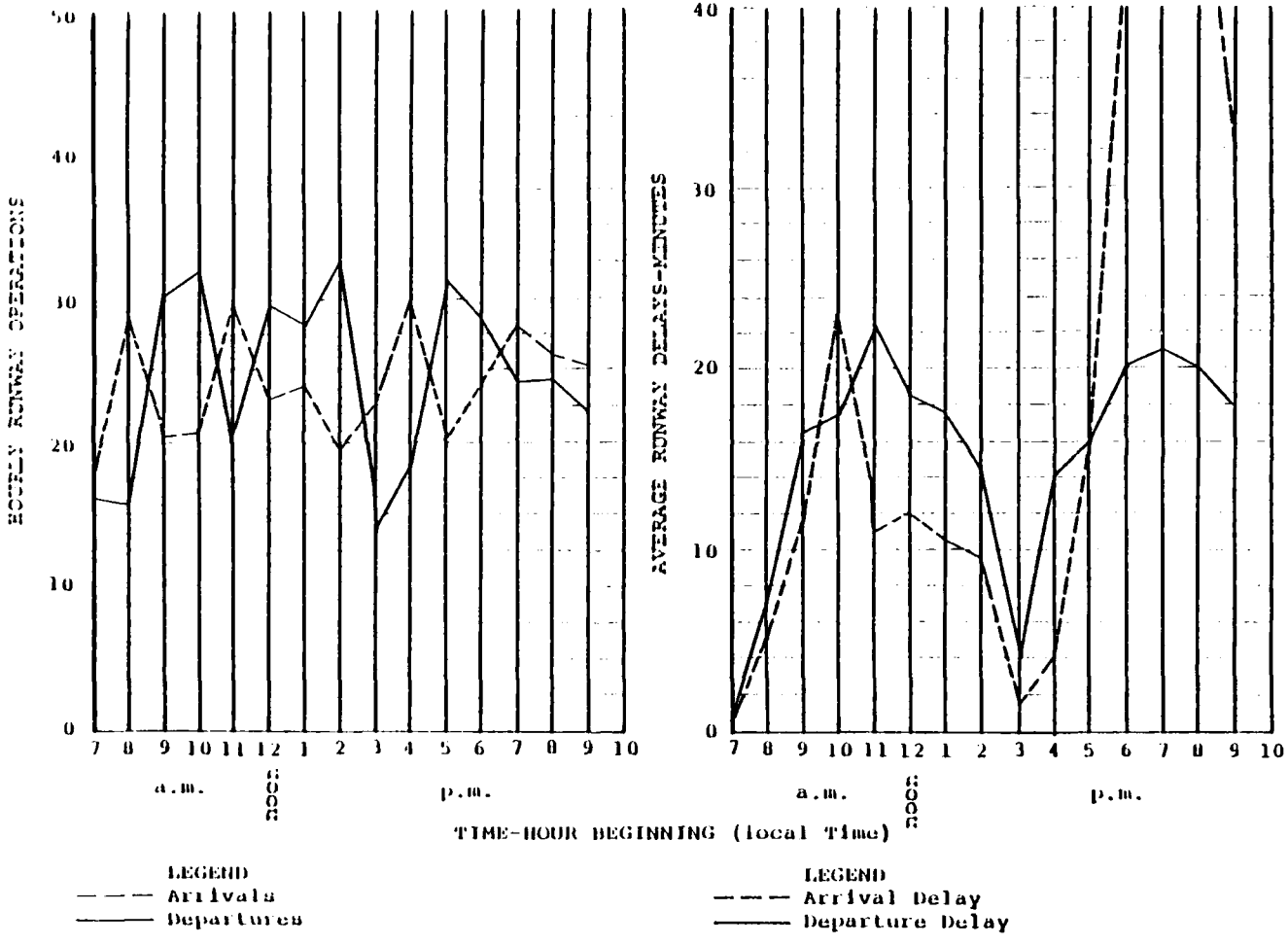
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 2000-2100 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	23.9	26.1
Arrival	Air delay	minute	19.3	55.2
Departure	Flow rate	a/c per hr	24.7	24.4
Departure	Runway delay	minute	16.3	20.8

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 11

Lambert—St. Louis International Airport

ARRIVALS ON 24
DEPARTURES ON 24
IFR 2+3 BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 12

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L GA Operations on 17	12R, 12L

Length and Level of Detail of Simulation Run:

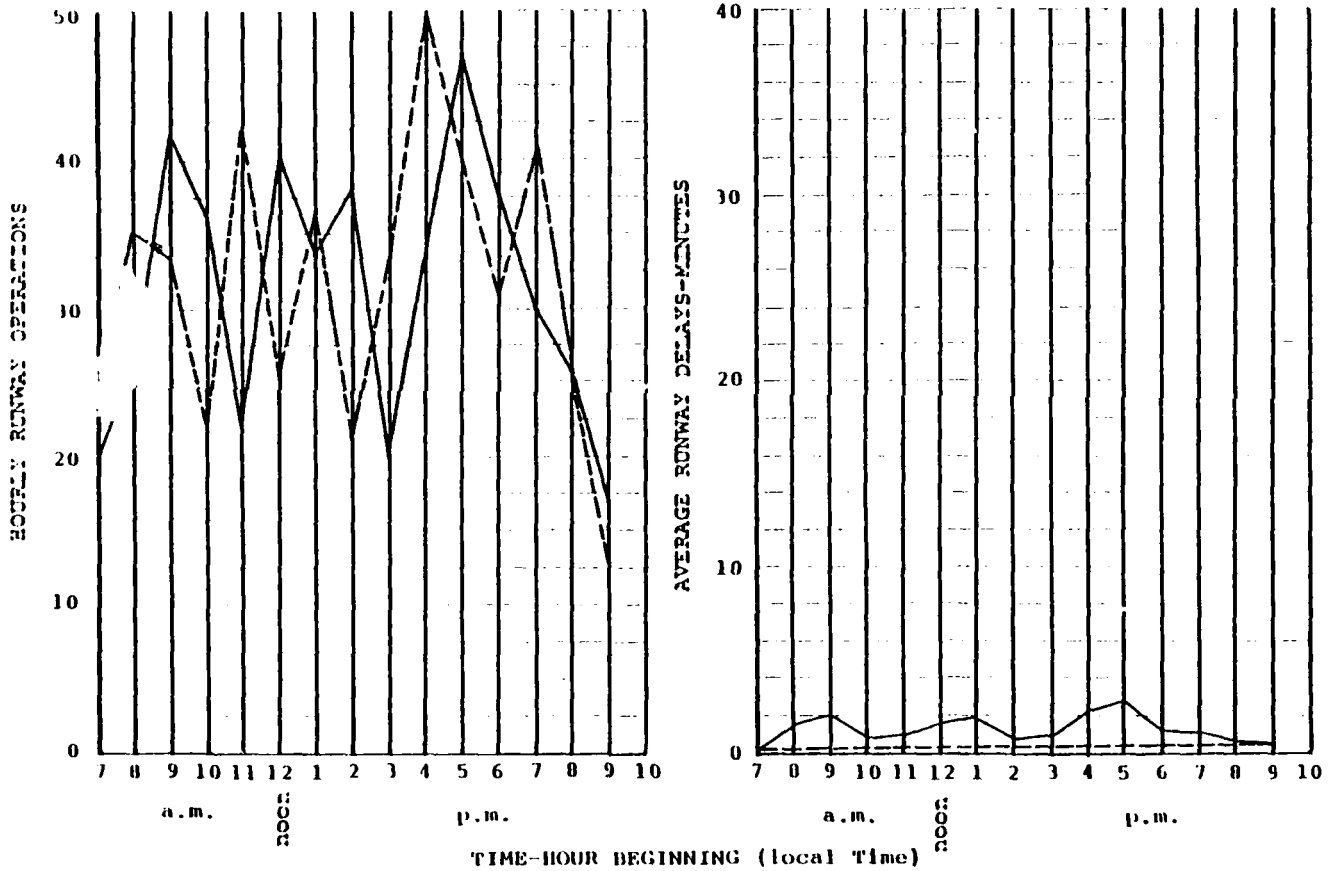
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.9	39.5
Arrival	Air delay	minute	0.3	0.5
Departure	Flow rate	a/c per hr	31.0	47.2
Departure	Runway delay	minute	1.3	2.4

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 12

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
GENERAL AVIATION ON 17
DEPARTURES ON 12R, 12L
VFR BASELINE

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 13

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L GA Operations on 17	12R, 12L

Length and Level of Detail of Simulation Run:

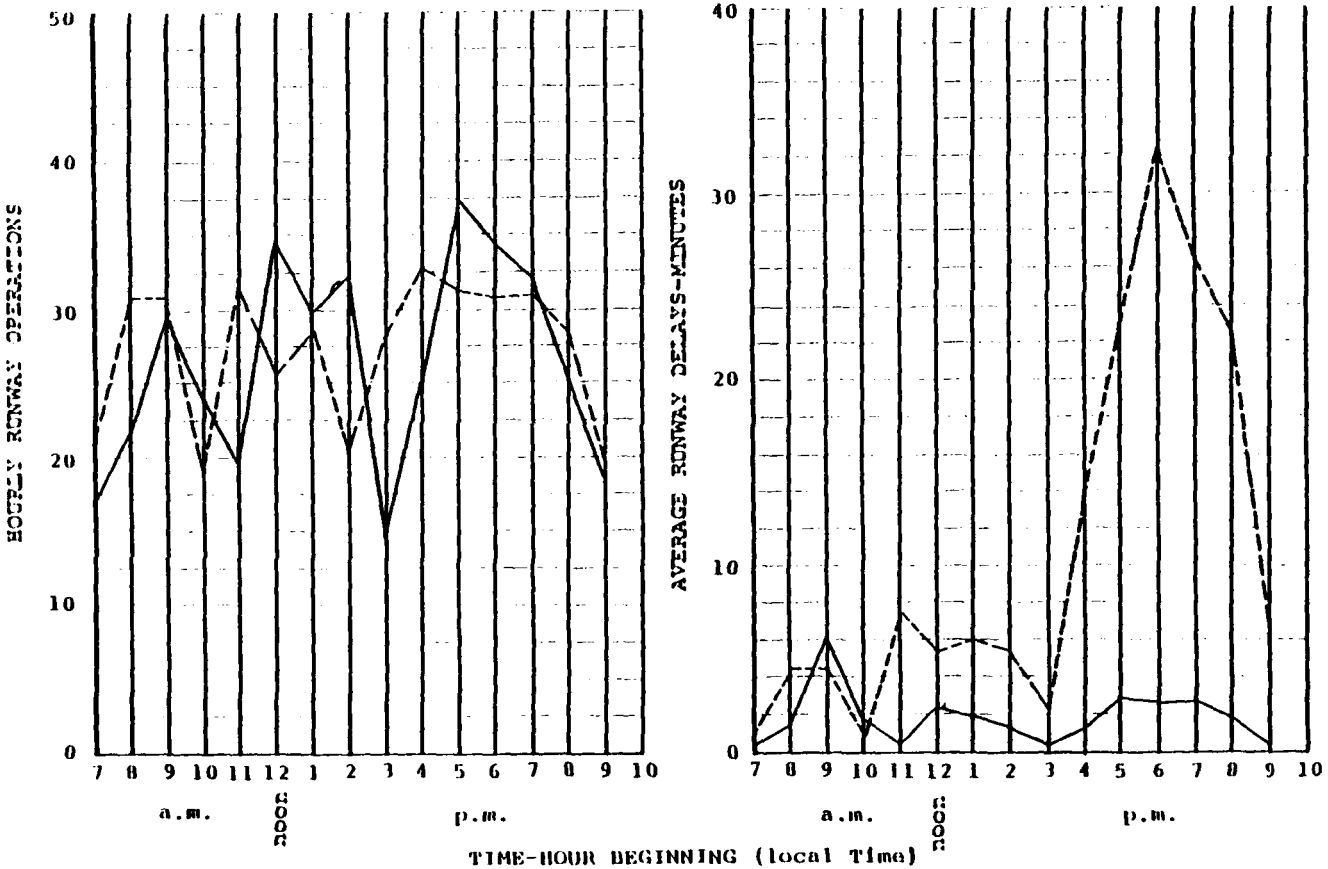
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	27.3	31.0
Arrival	Air delay	minute	11.8	31.8
Departure	Flow rate	a/c per hr	27.8	33.7
Departure	Runway delay	minute	2.3	2.6

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 13

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
GENERAL AVIATION ON 17
DEPARTURES ON 12R, 12L
IFR1 BASELINE (1979)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 26

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

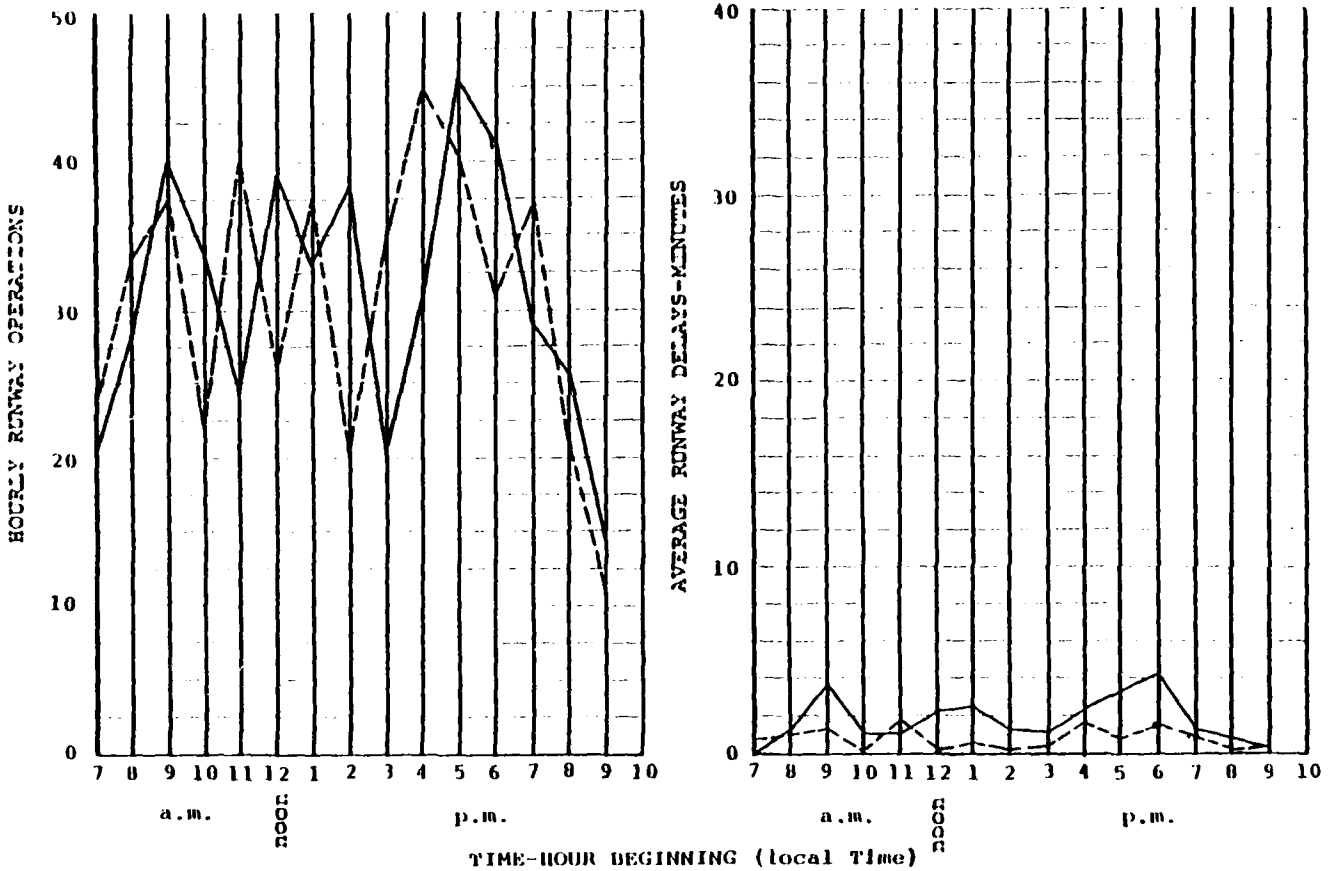
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.7	31.4
Arrival	Air delay	minute	0.9	1.7
Departure	Flow rate	a/c per hr	30.9	41.6
Departure	Runway delay	minute	2.1	4.4

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 26

Lambert–St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR BASELINE (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 27

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

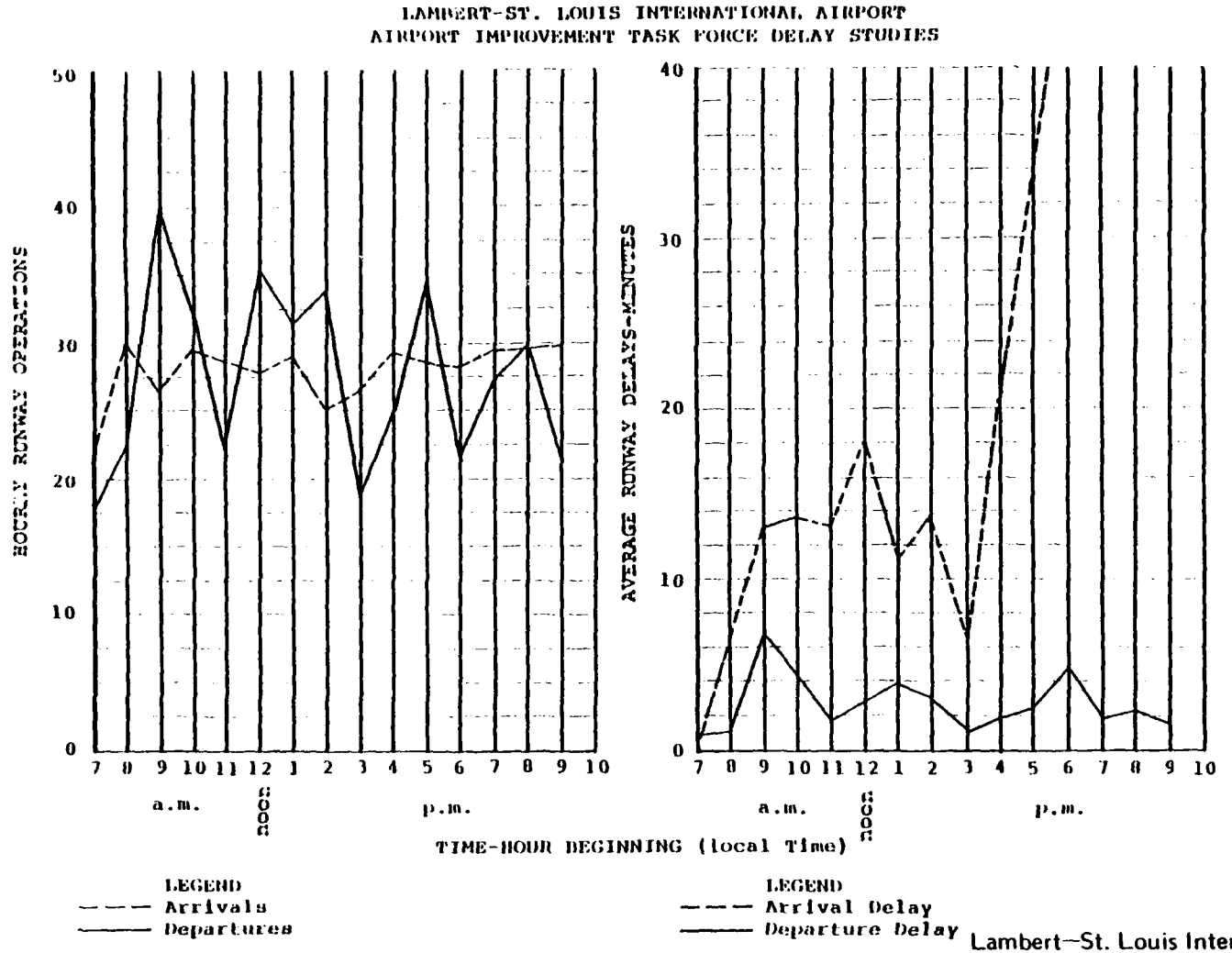
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	27.7	28.2
Arrival	Air delay	minute	25.7	54.8
Departure	Flow rate	a/c per hr	28.2	31.8
Departure	Runway delay	minute	3.0	5.1



Experiment 27

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
IFR1 BASELINE (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 28

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR2 and IFR3 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

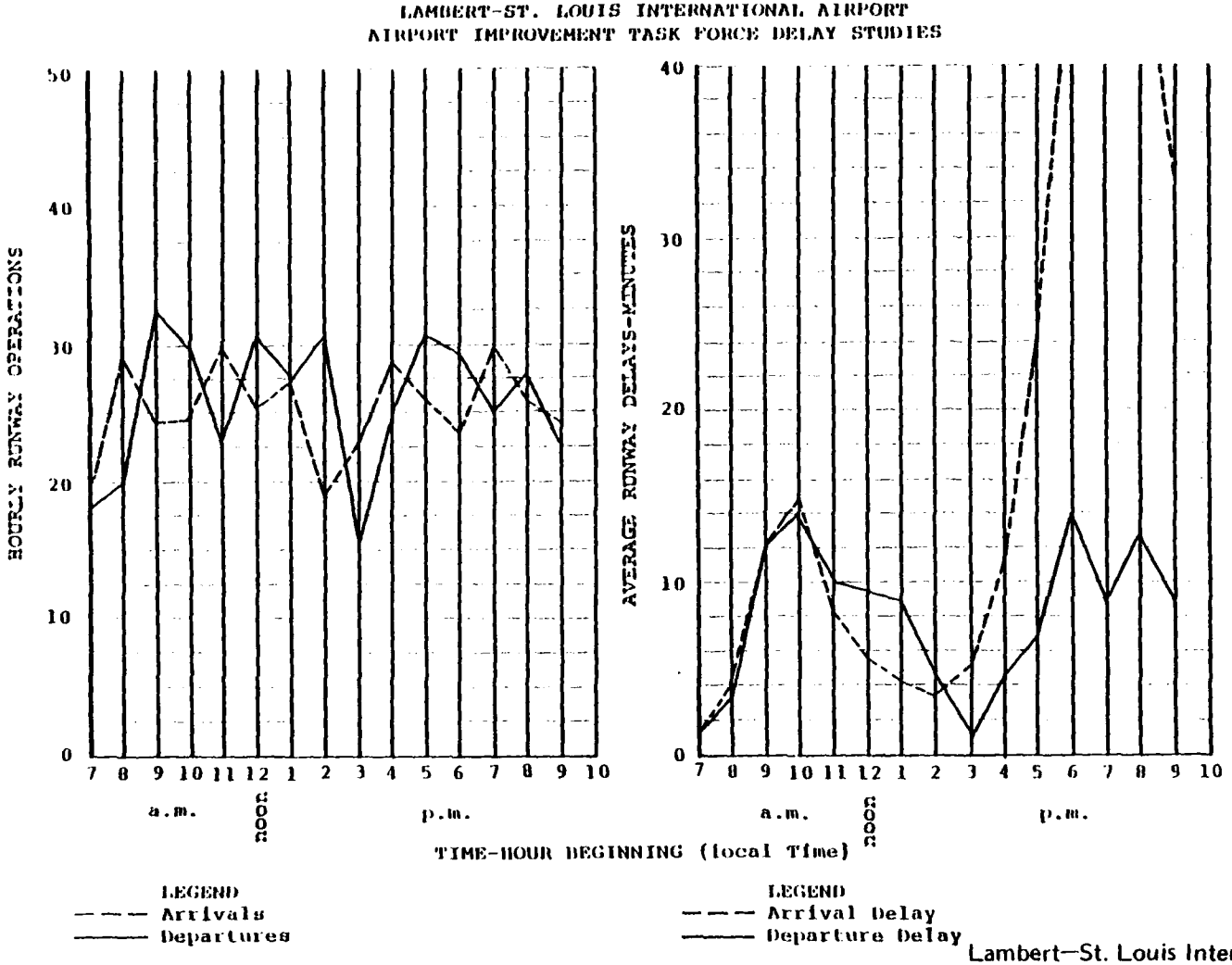
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 2000-2100 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	25.2	25.5
Arrival	Air delay	minute	18.8	49.8
Departure	Flow rate	a/c per hr	26.0	28.5
Departure	Runway delay	minute	8.2	13.2



Experiment **28**

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
IFR2+3 BASELINE (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 29

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

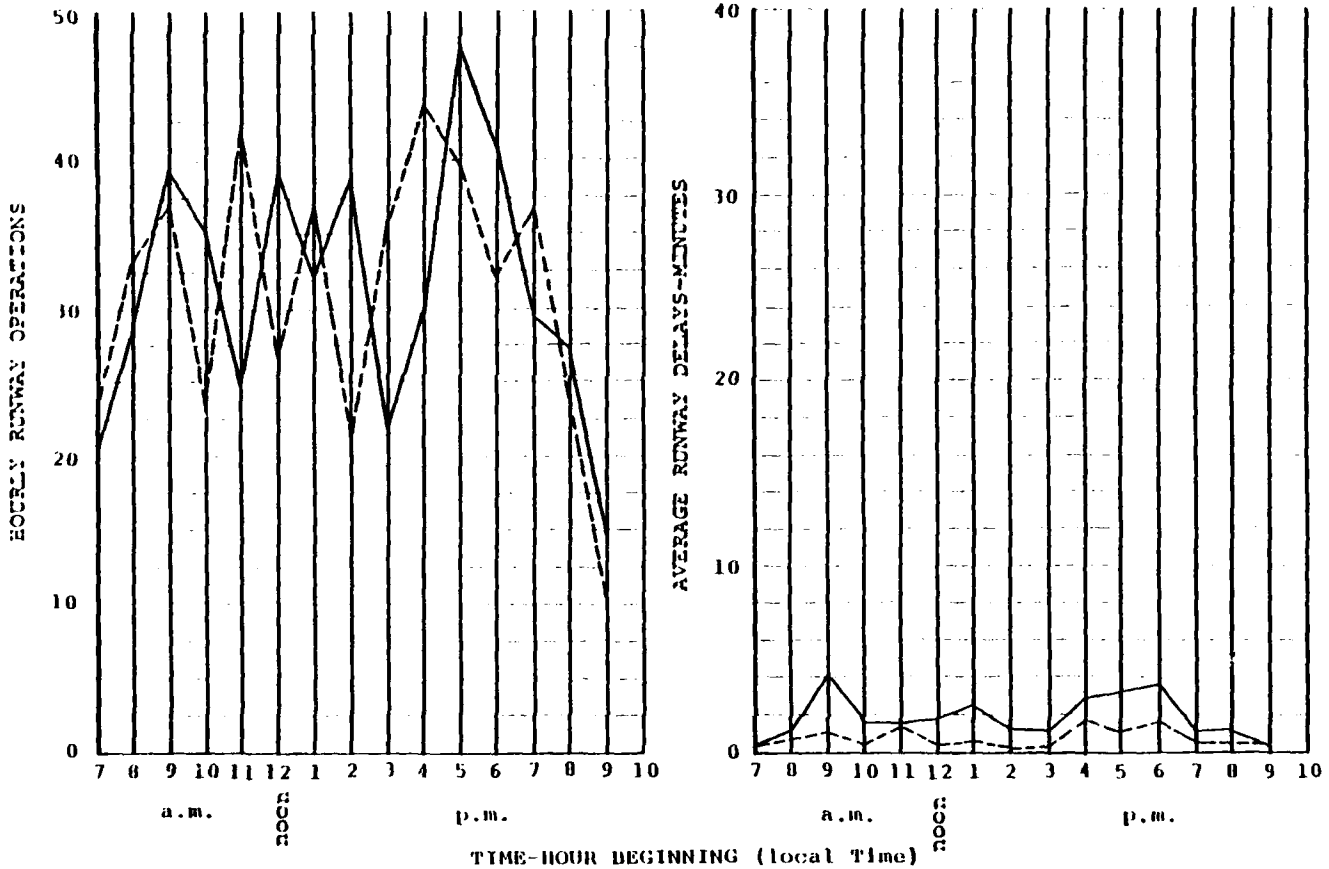
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 0900-1000 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.7	37.0
Arrival	Air delay	minute	0.9	1.4
Departure	Flow rate	a/c per hr	30.9	38.9
Departure	Runway delay	minute	2.1	4.1

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 29

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L
VFR BASELINE (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 30

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

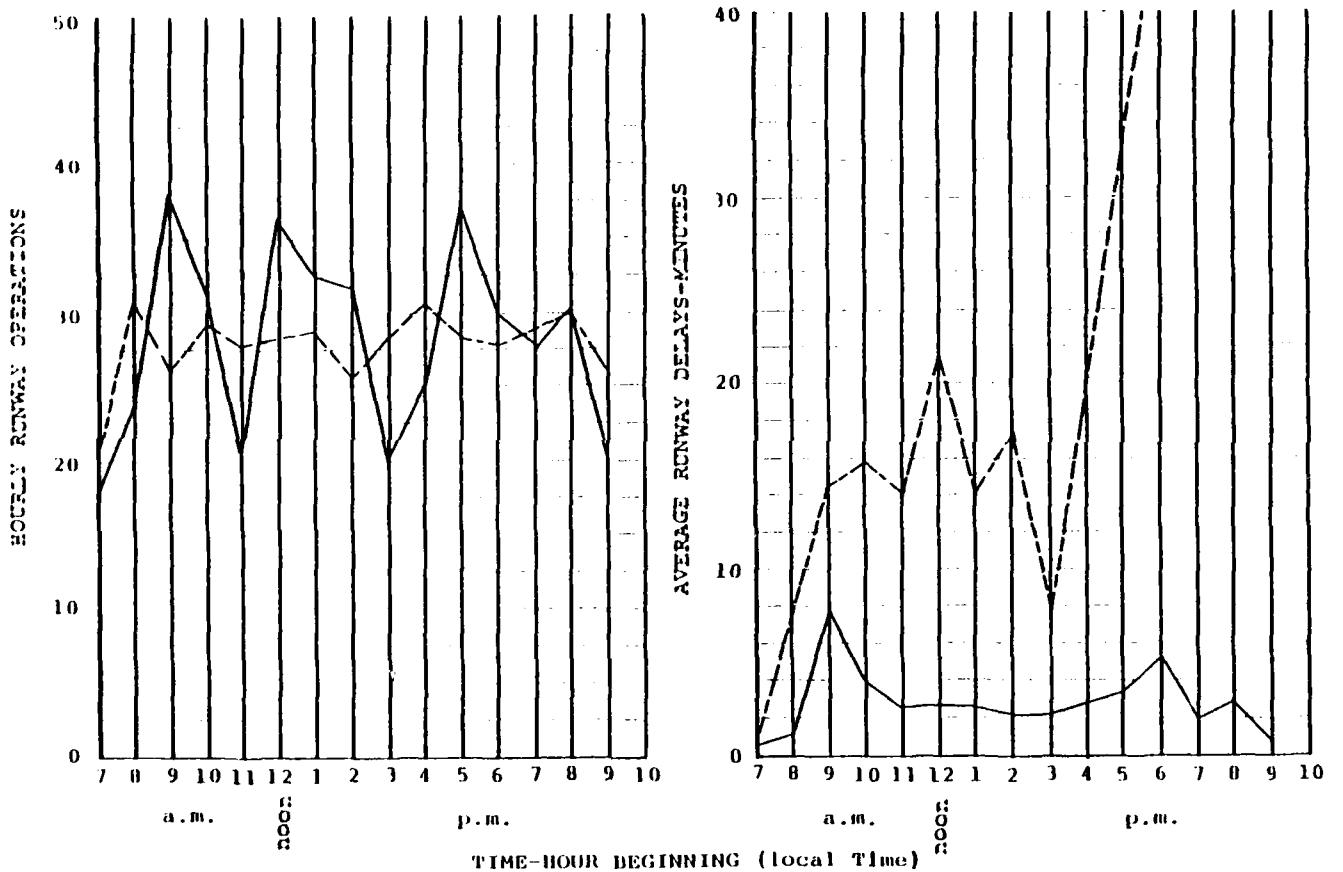
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	27.8	27.5
Arrival	Air delay	minute	25.1	51.7
Departure	Flow rate	a/c per hr	28.3	30.5
Departure	Runway delay	minute	3.1	5.4

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 30

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L
IFR1 BASELINE (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 31

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR2 and IFR3 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

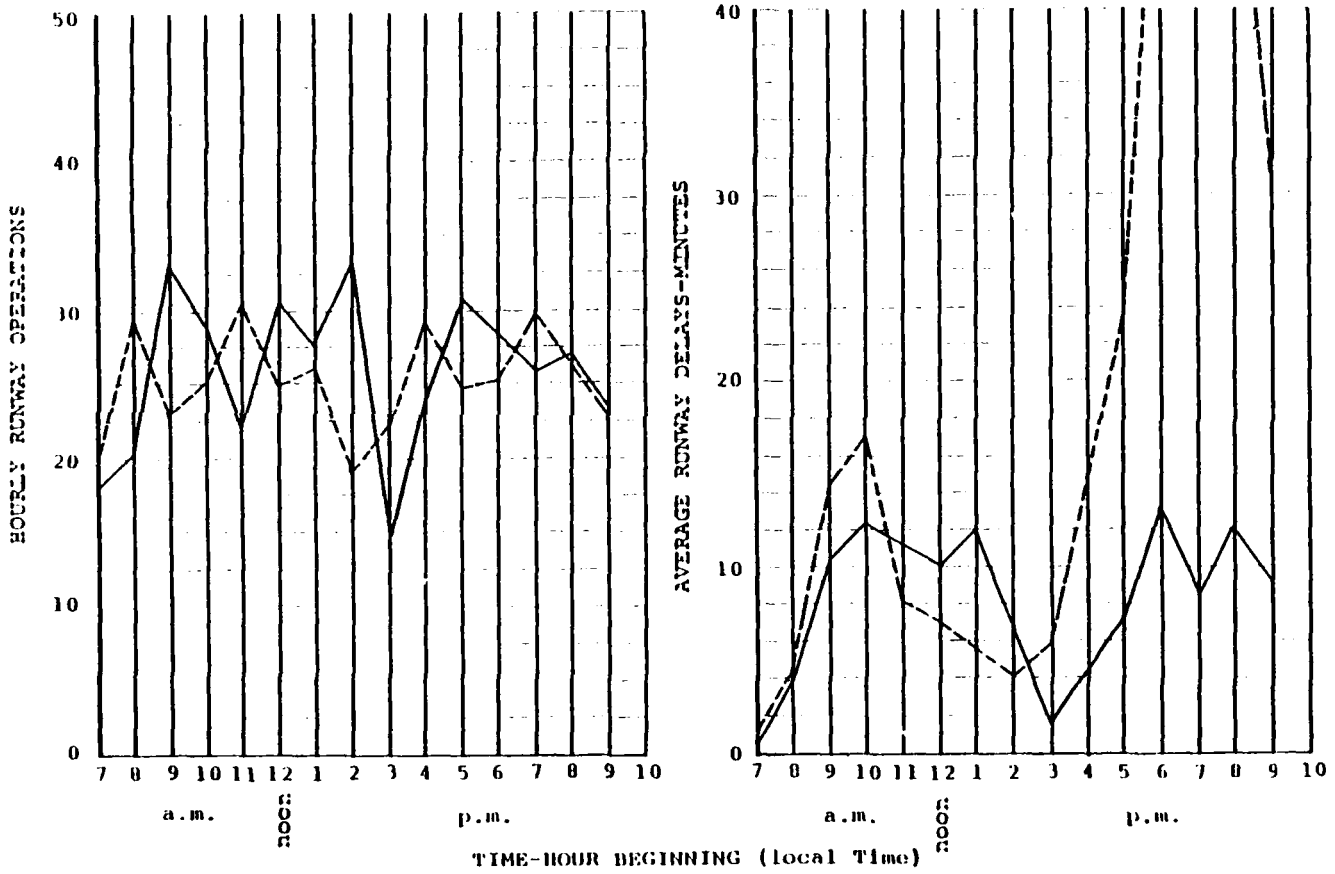
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	25.1	25.1
Arrival	Air delay	minute	19.2	48.3
Departure	Flow rate	a/c per hr	25.9	27.9
Departure	Runway delay	minute	8.8	13.7

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 31

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L
IFR 2+3 BASELINE (1985)

Peat, Marwick, Mitchell &Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 32A

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L, 24	30R, 30L

Length and Level of Detail of Simulation Run:

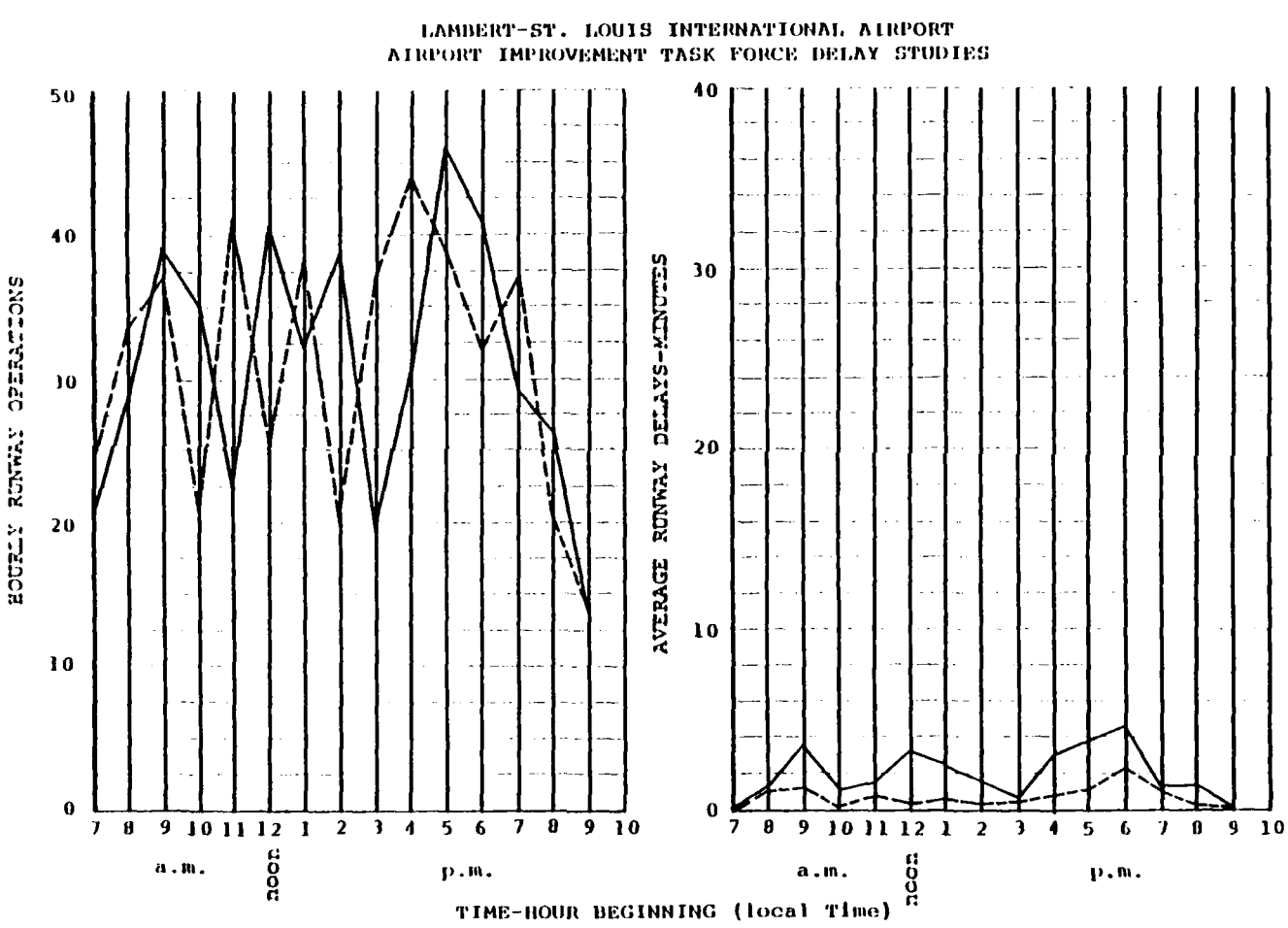
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.8	32.2
Arrival	Air delay	minute	0.8	2.2
Departure	Flow rate	a/c per hr	31.1	40.9
Departure	Runway delay	minute	2.3	4.6

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 32A

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L, AND 24
DEPARTURES ON 30R, 30L
VFR BASELINE (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 32

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L, 24	30R, 30L

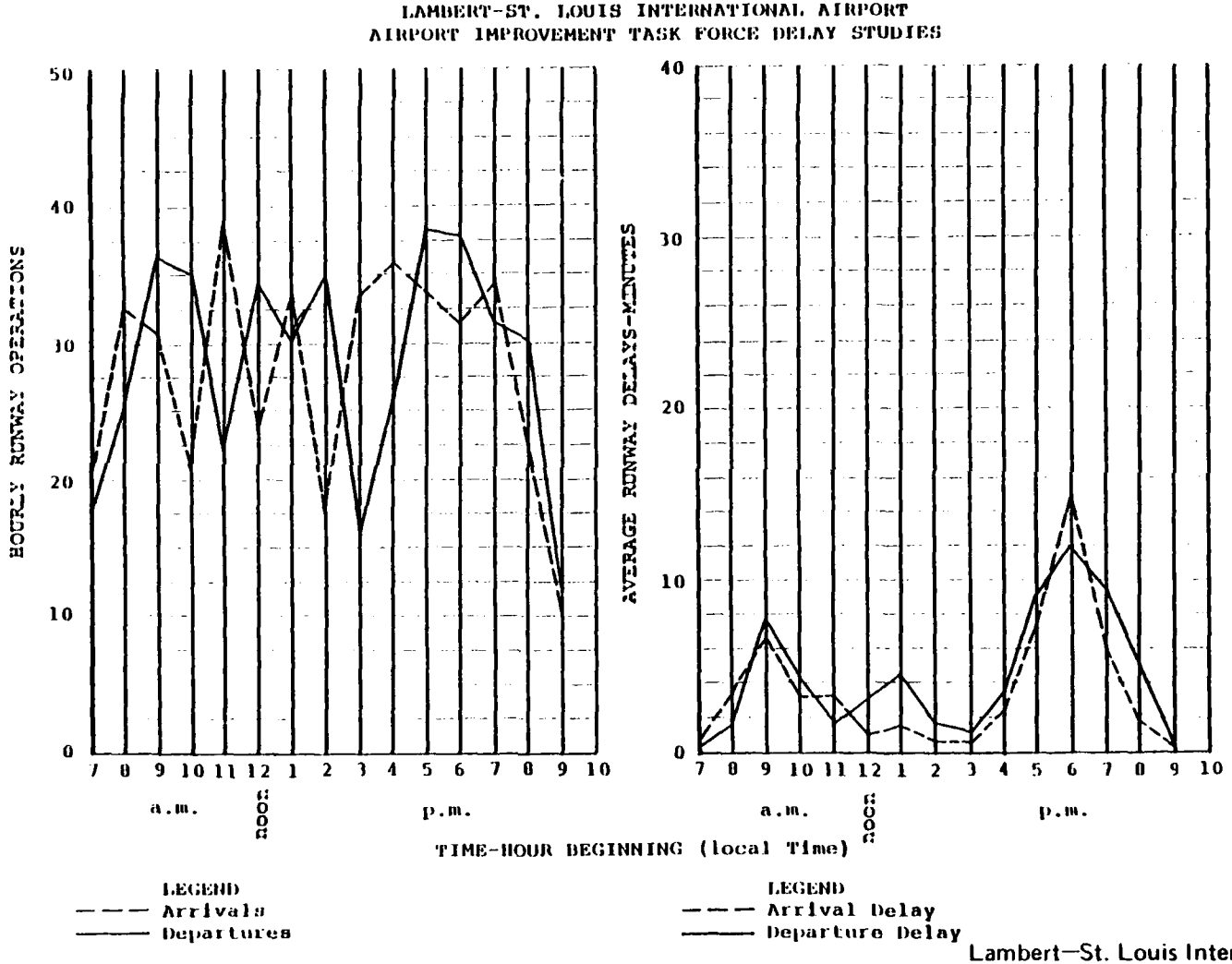
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.1	31.5
Arrival	Air delay	minute	4.0	14.8
Departure	Flow rate	a/c per hr	28.7	37.5
Departure	Runway delay	minute	5.0	11.8



Experiment 32

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L, AND 24
DEPARTURES ON 30R, 30L
IFR1 BASELINE (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 33

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L, 6

Length and Level of Detail of Simulation Run:

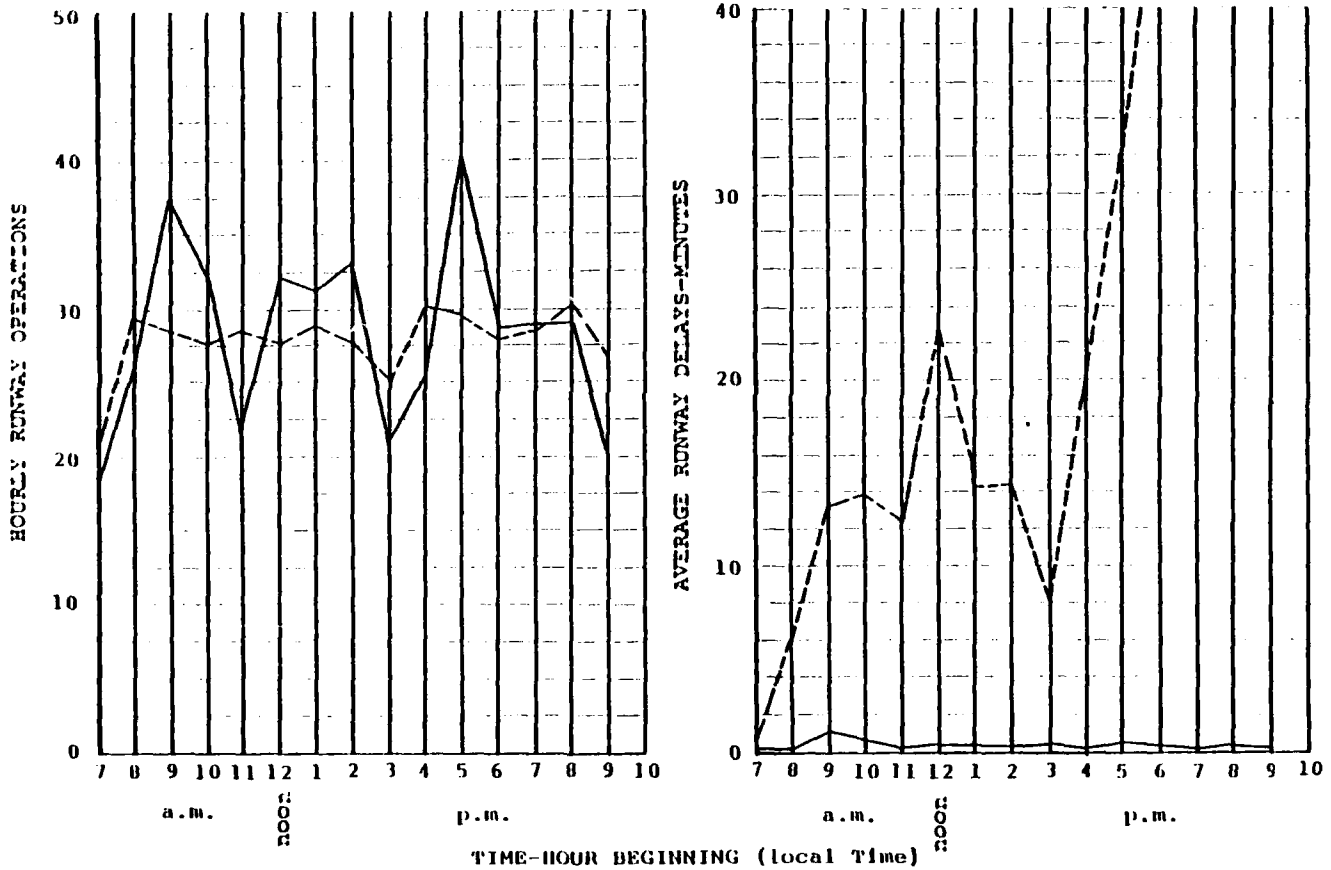
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1900-2000 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	27.8	28.5
Arrival	Air delay	minute	25.7	59.4
Departure	Flow rate	a/c per hr	28.3	29.0
Departure	Runway delay	minute	0.5	0.4

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 33

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L, AND 6
IFR1 BASELINE (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 34

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L GA Operations on 17	12R, 12L

Length and Level of Detail of Simulation Run:

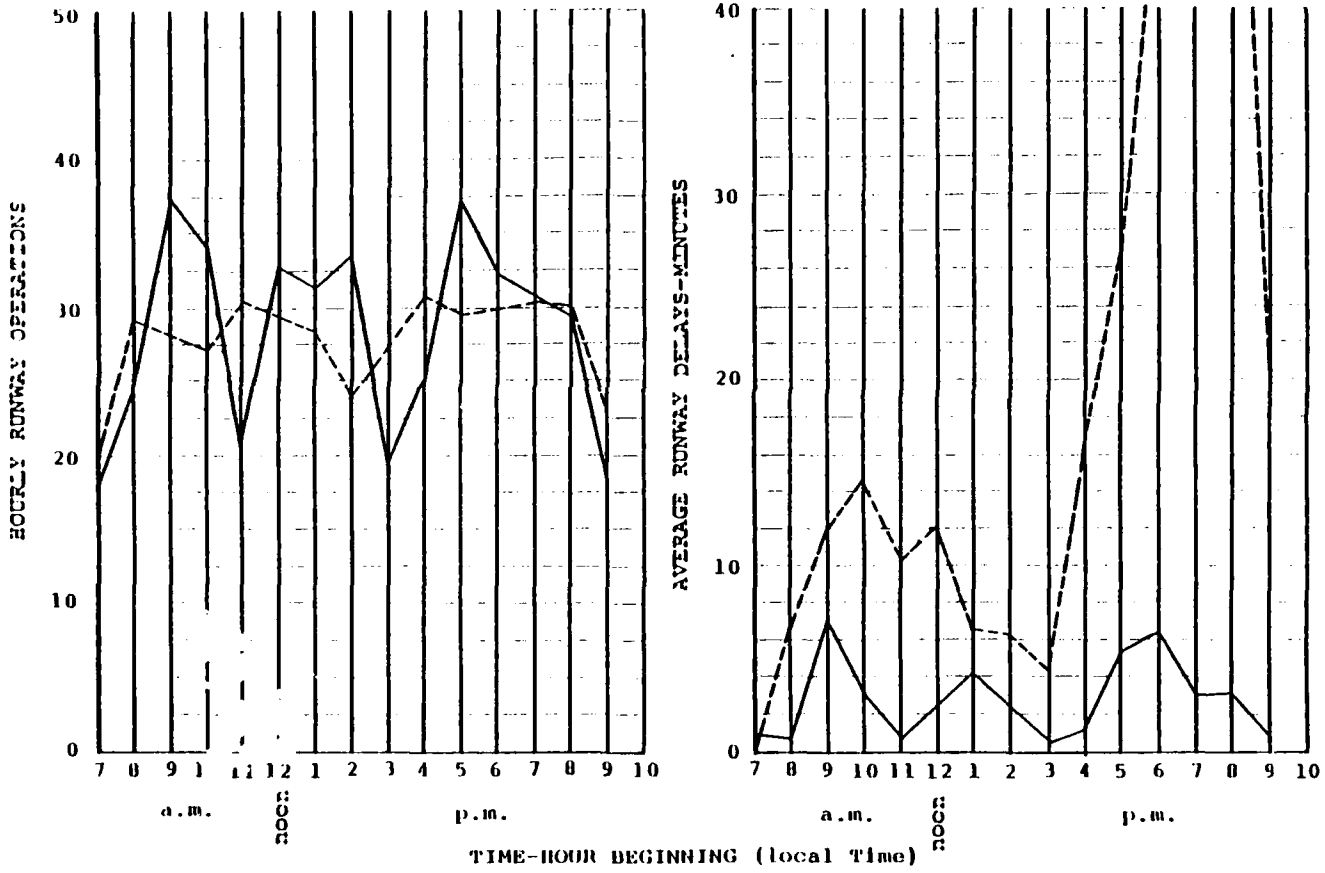
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.1	29.8
Arrival	Air delay	minute	18.7	42.5
Departure	Flow rate	a/c per hr	28.6	32.2
Departure	Runway delay	minute	3.3	6.3

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 34

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
GENERAL AVIATION ON 17
DEPARTURES ON 12R, 12L
IFR1 BASELINE (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 35

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

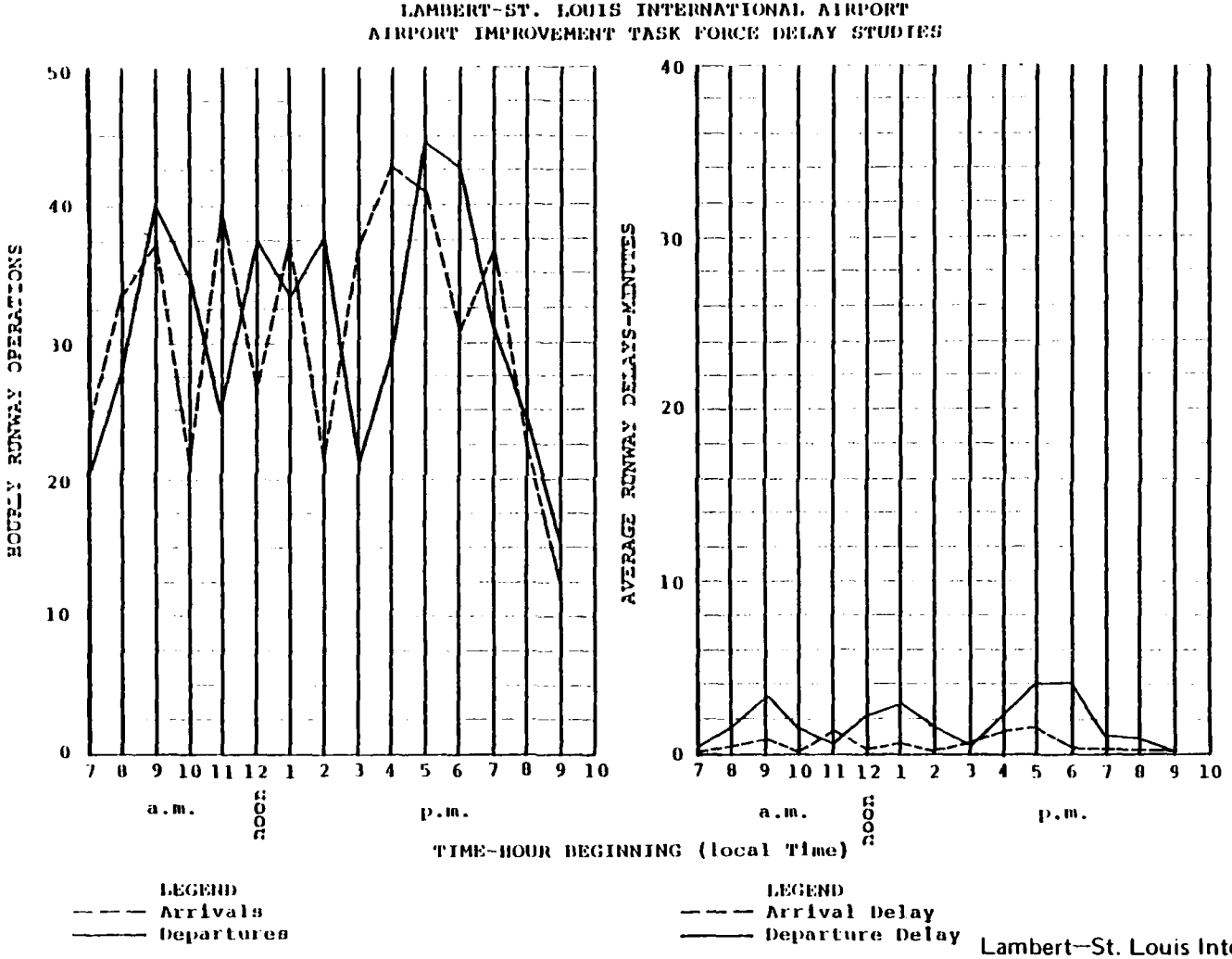
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.8	41.8
Arrival	Air delay	minute	0.8	1.3
Departure	Flow rate	a/c per hr	31.0	44.6
Departure	Runway delay	minute	2.2	4.1



Experiment 35

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR AIRFIELD DEVELOPMENT (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 35G

Scenario:

This experiment is used as a baseline to evaluate the effect of proposed terminal expansion on aircraft delays. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

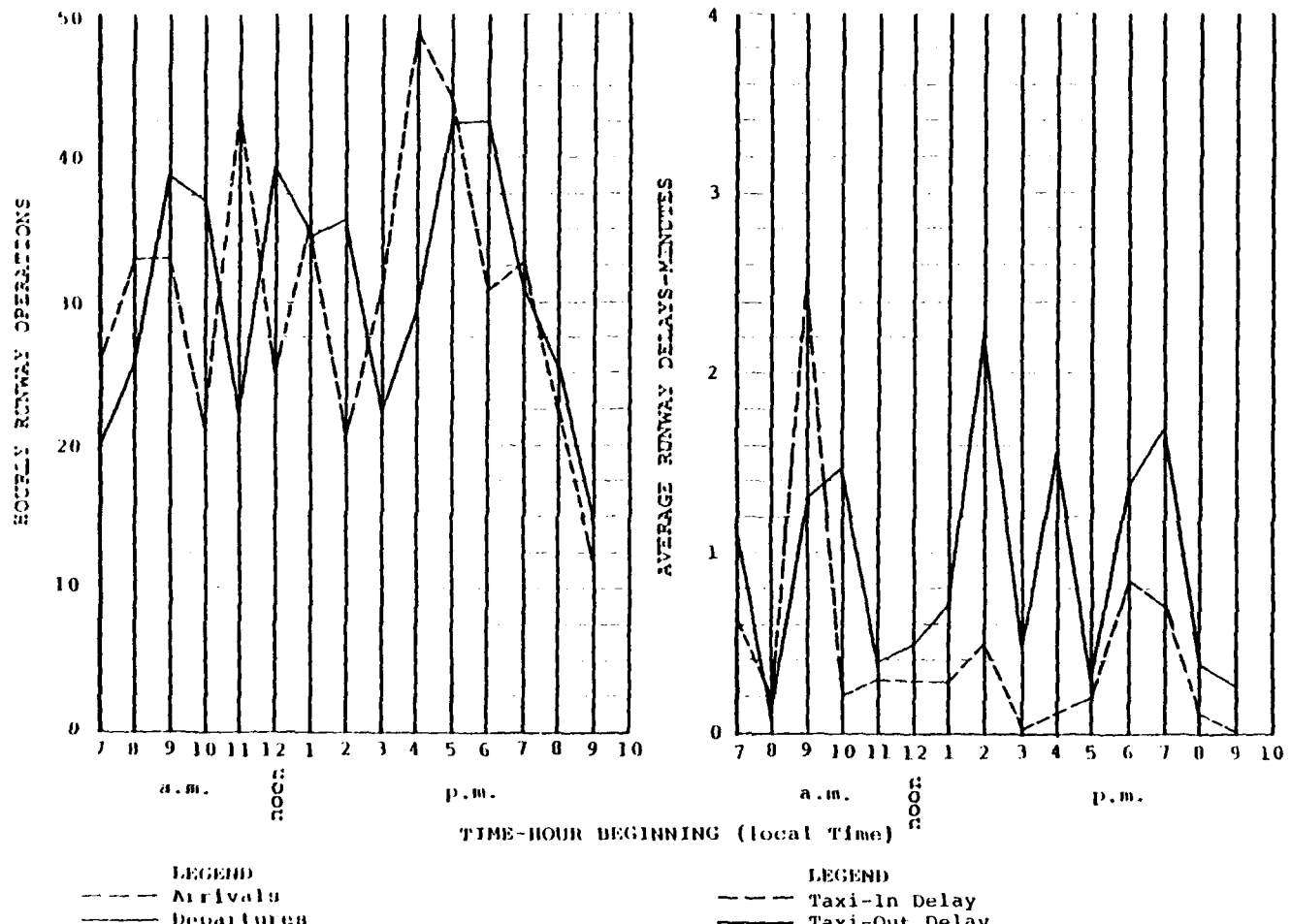
The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per	30.8	31.2
Arrival	Taxi-in delay	minute	0.5	0.8
Departure	Flow rate	a/c per hr	30.8	42.4
Departure	Taxi-out delay	minute	1.0	1.4

Number of aircraft delayed because of gate congestion: 7.

Average gate congestion delays incurred by these aircraft: 20.9 minutes.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 35G

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR BASELINE TERMINAL EXPANSION (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 35A

Scenario:

This experiment is used to evaluate the effect of increasing the proportion of heavy jets in the aircraft mix on aircraft delays. It was assumed in this experiment that the planned airfield developments were in place. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

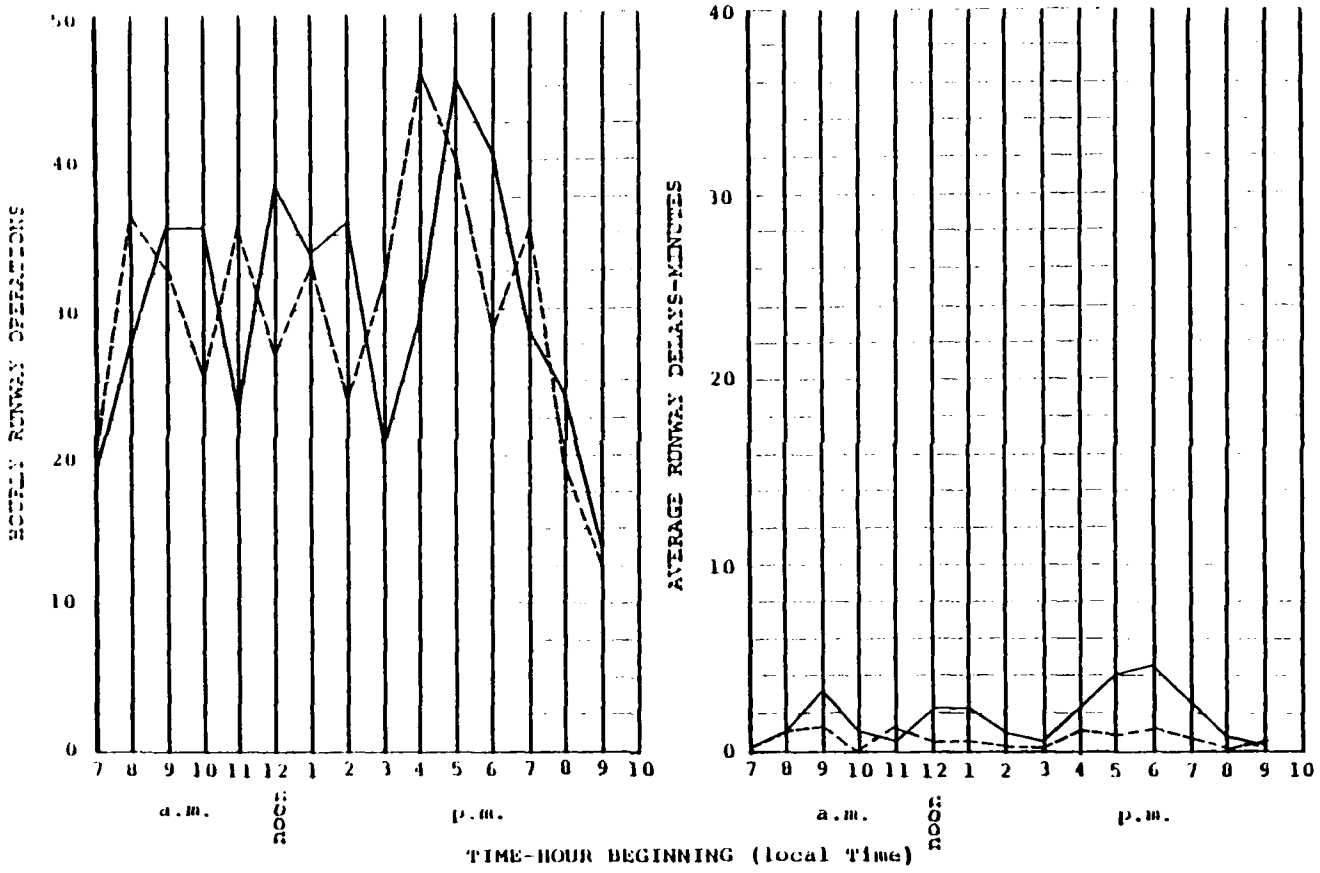
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.1	29.0
Arrival	Air delay	minute	0.9	1.3
Departure	Flow rate	a/c per hr	30.1	40.8
Departure	Runway delay	minute	2.1	4.7

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 35A

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR AIRFIELD DEVELOPMENT
INCREASED HEAVY (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 35B

Scenario:

This experiment is used to evaluate the effect of decreasing the proportion of general aviation aircraft in the mix on aircraft delays. It was assumed in this experiment that the planned airfield developments were in place. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

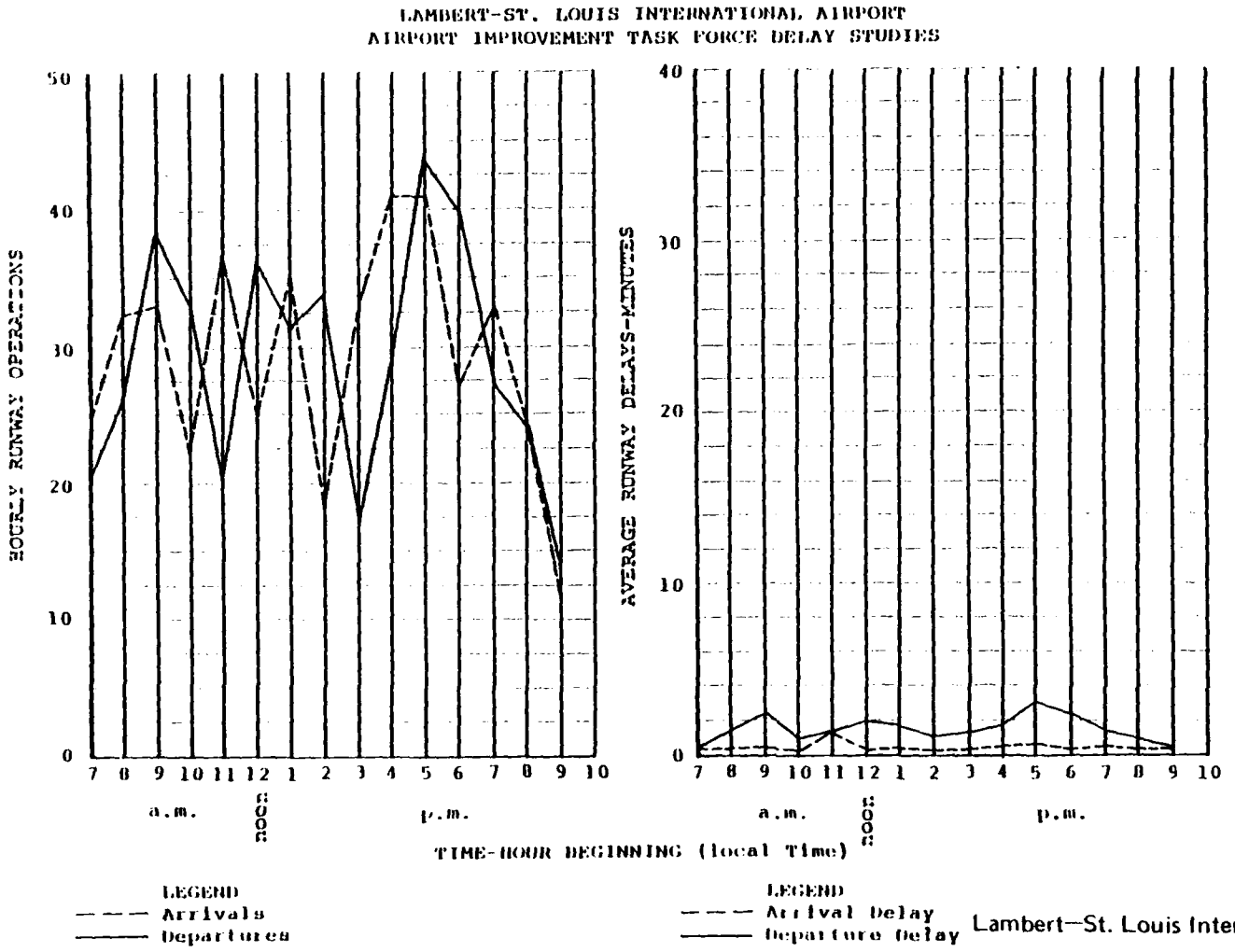
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.6	40.9
Arrival	Air delay	minute	0.6	0.8
Departure	Flow rate	a/c per hr	29.0	43.3
Departure	Runway delay	minute	1.7	3.3



Experiment 35B

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR AIRFIELD DEVELOPMENT
DECREASED GENERAL AVIATION (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 36

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

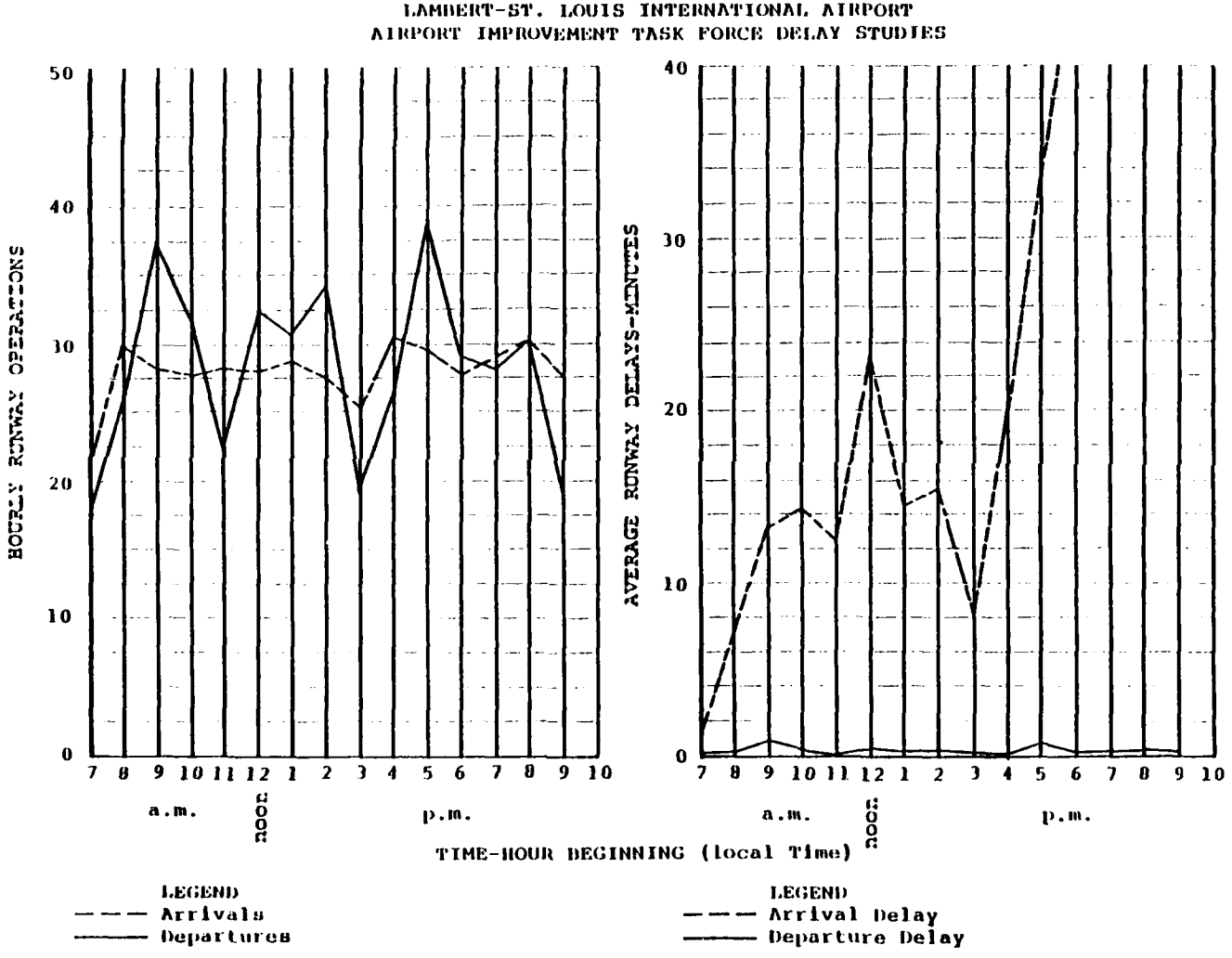
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1900-2000 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.0	29.0
Arrival	Air delay	minute	25.8	59.3
Departure	Flow rate	a/c per hr	28.4	28.0
Departure	Runway delay	minute	0.5	0.3



Experiment 36

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
IFR1 AIRFIELD DEVELOPMENT (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 38

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

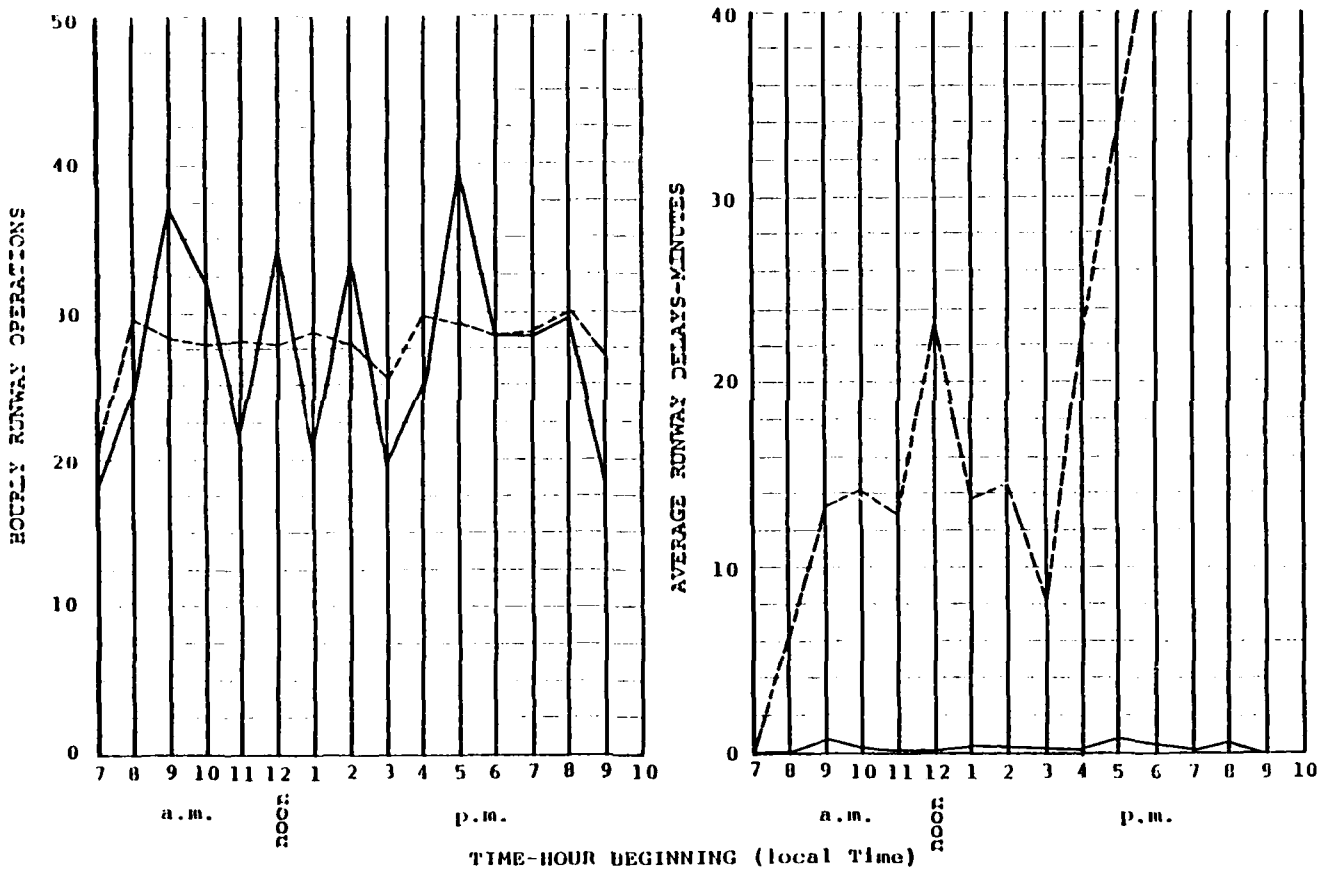
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1900-2000 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	27.9	28.5
Arrival	Air delay	minute	26.1	60.2
Departure	Flow rate	a/c per hr	26.1	28.2
Departure	Runway delay	minute	0.5	0.4

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 38

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L
IFR1 AIRFIELD DEVELOPMENT

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 39A

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L, 24	30R, 30L

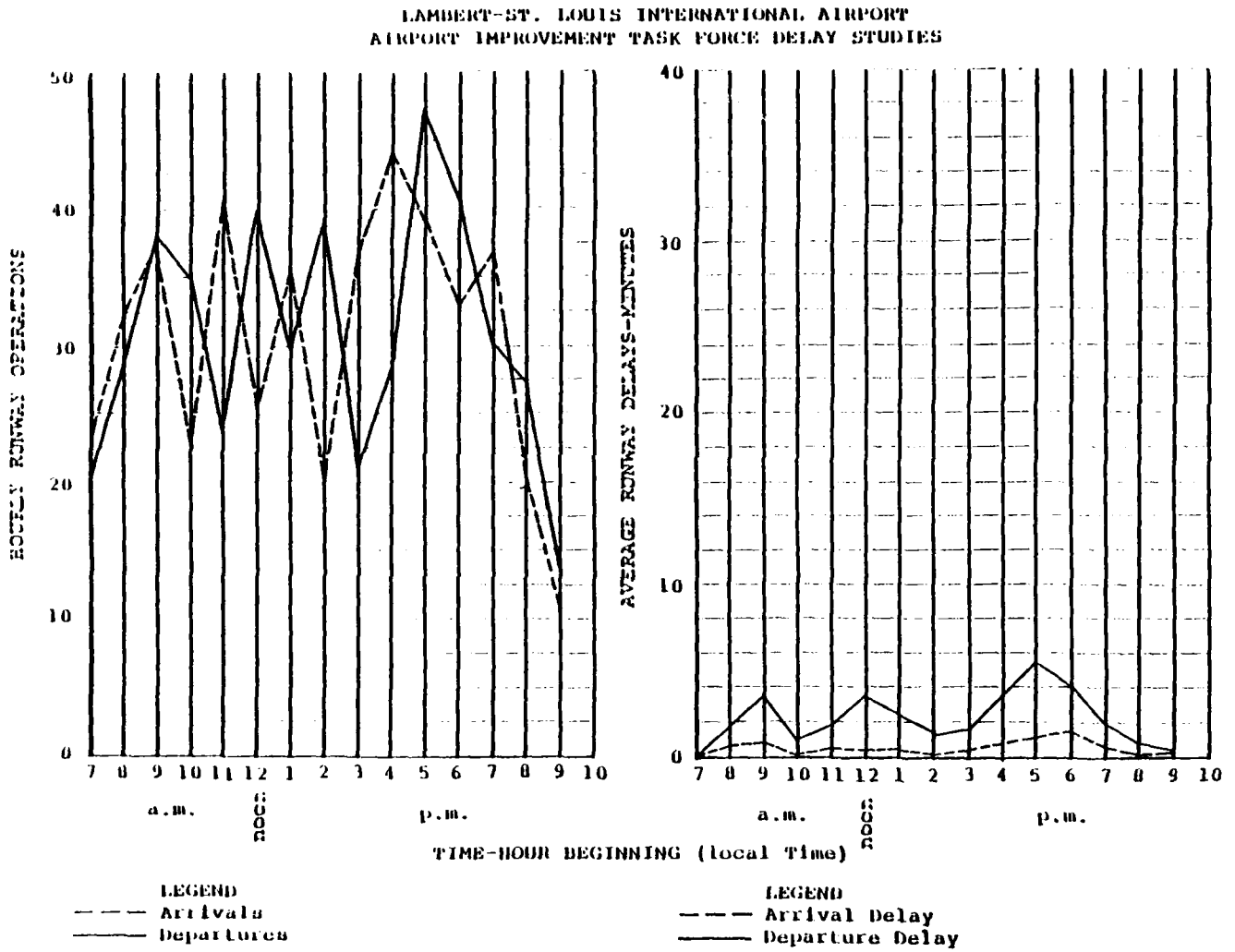
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.7	38.2
Arrival	Air delay	minute	0.7	1.3
Departure	Flow rate	a/c per hr	30.9	47.3
Departure	Runway delay	minute	2.5	5.4



Experiment 39A

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L, AND 24
DEPARTURES ON 30R, 30L
VFR AIRFIELD DEVELOPMENT (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 39

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L, 24	30R, 30L

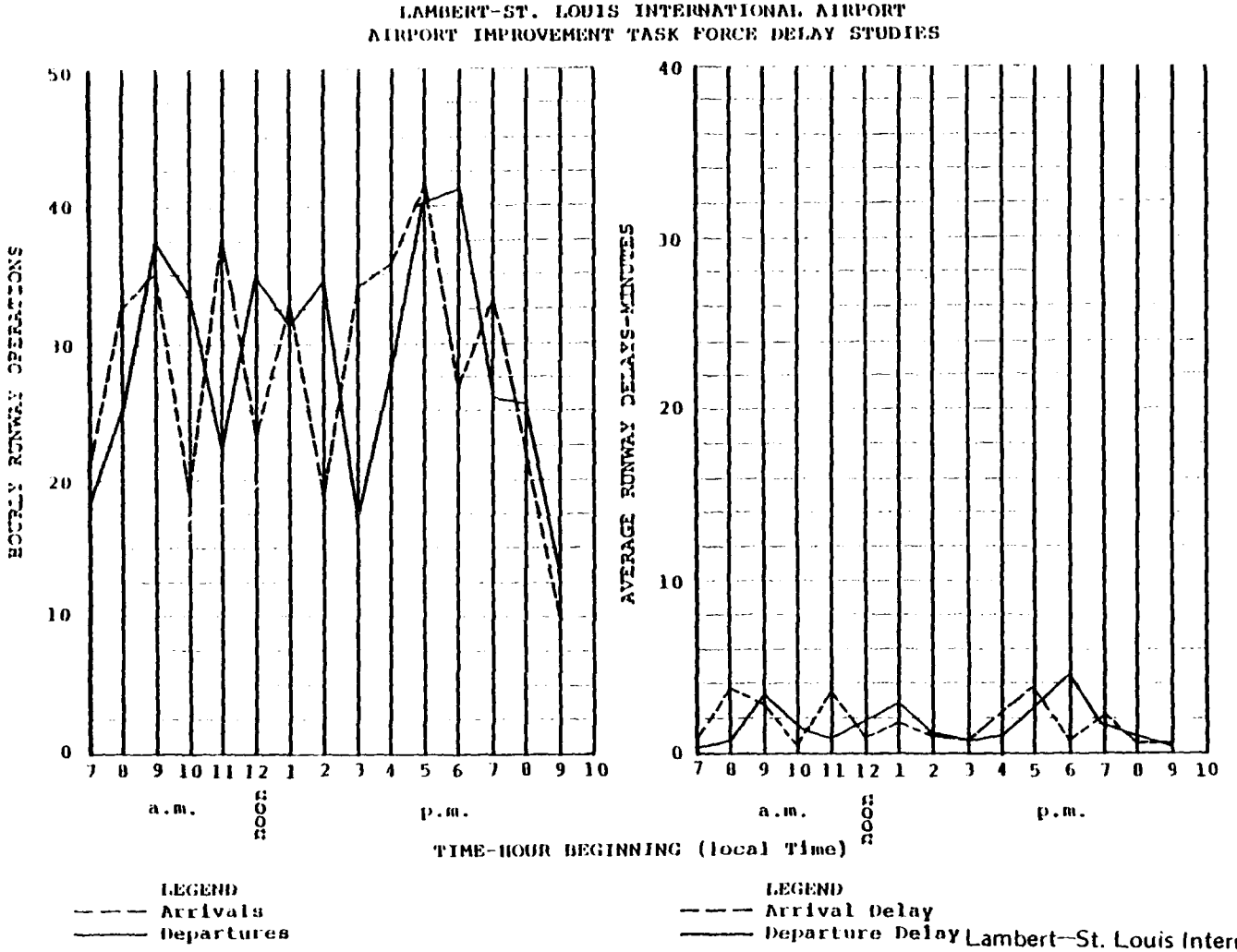
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 0900-1000 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.0	35.0
Arrival	Air delay	minute	1.9	3.1
Departure	Flow rate	a/c per hr	28.5	38.0
Departure	Runway delay	minute	2.0	3.4



Experiment 39

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L, AND 24
DEPARTURES ON 30R, 30L
IFR1 AIRFIELD DEVELOPMENT (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 40

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L, 6

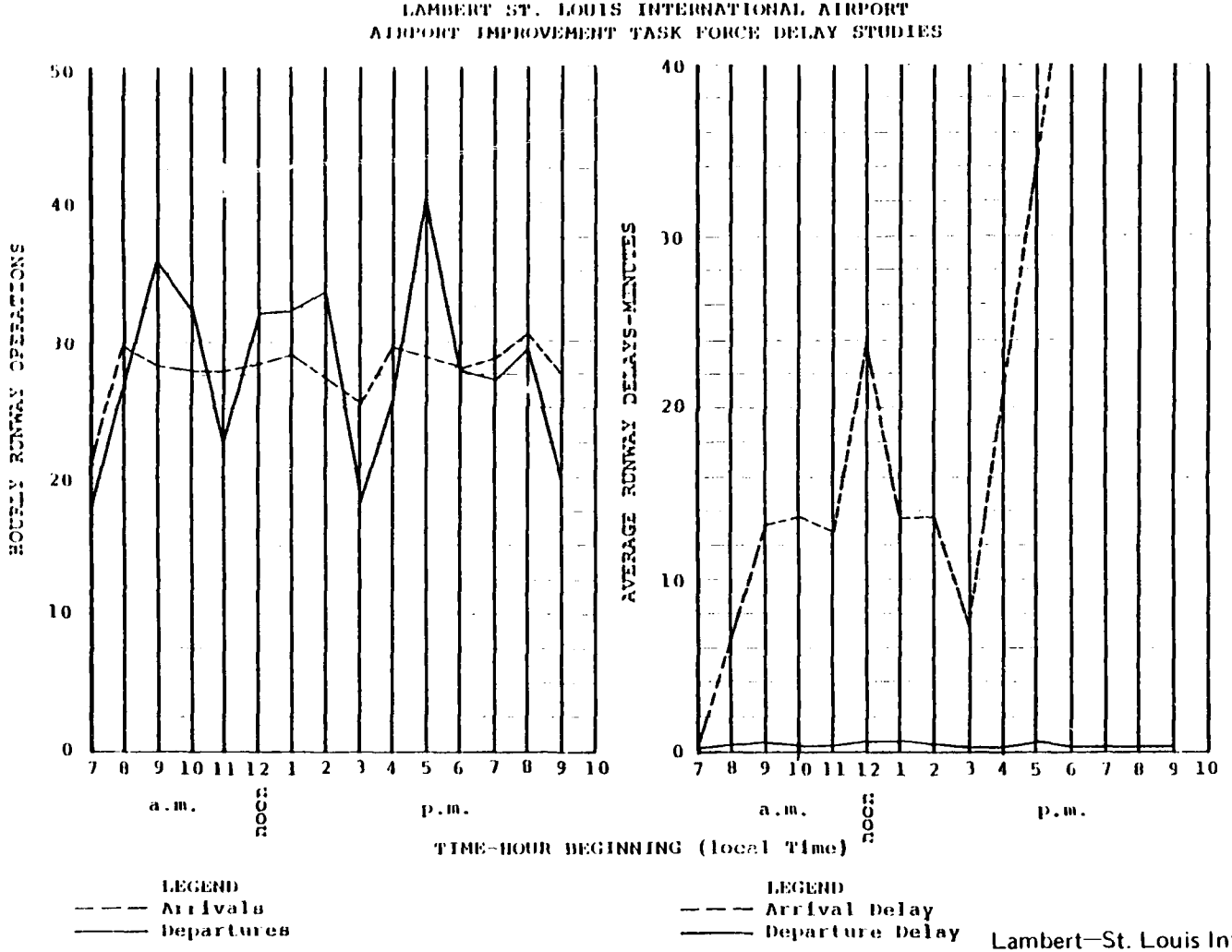
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1900-2000 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	27.8	28.5
Arrival	Air delay	minute	26.5	62.4
Departure	Flow rate	a/c per hr	28.3	27.3
Departure	Runway delay	minute	0.3	0.2



Experiment **40**

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 30R, 30L, AND 6
IFR1 AIRFIELD DEVELOPMENT (1985)

Peat, Marwick, Mitchell & Co. August 1980

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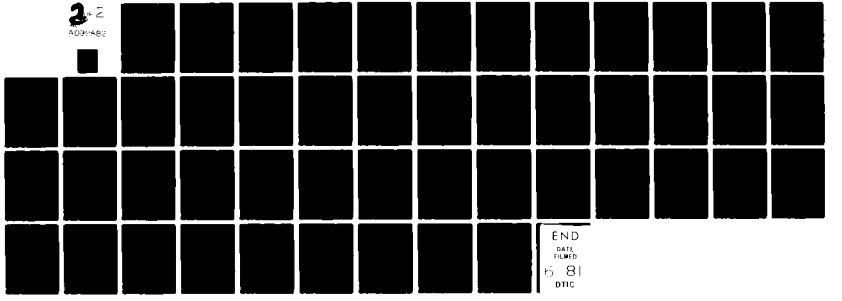


Lambert-St. Louis International Airport Experiments

Experiment No. 41

Scenario:

This experiment is used to evaluate the effect of the proposed LDA approach on aircraft delays. It was assumed in this experiment that the planned airfield developments were in place. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

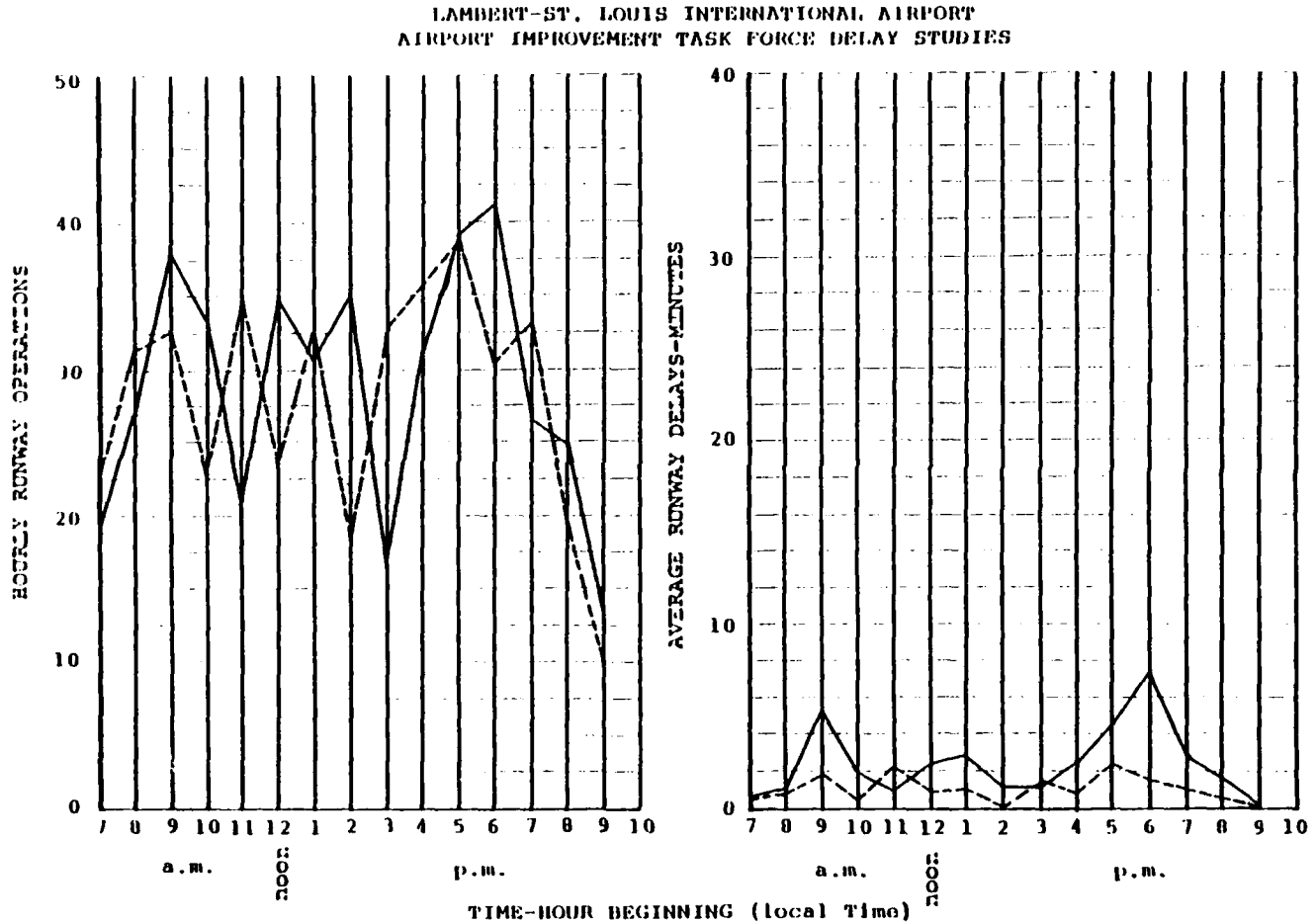
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.1	30.4
Arrival	Air delay	minute	1.2	1.2
Departure	Flow rate	a/c per hr	28.5	41.1
Departure	Runway delay	minute	2.8	7.2



Experiment 41

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
IFR1 LDA APPROACH (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 42

Scenario:

This experiment is used to evaluate the effect of the proposed LDA approach on aircraft delays. It was assumed in this experiment that the planned airfield developments were in place. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L, 24	30R, 30L

Length and Level of Detail of Simulation Run:

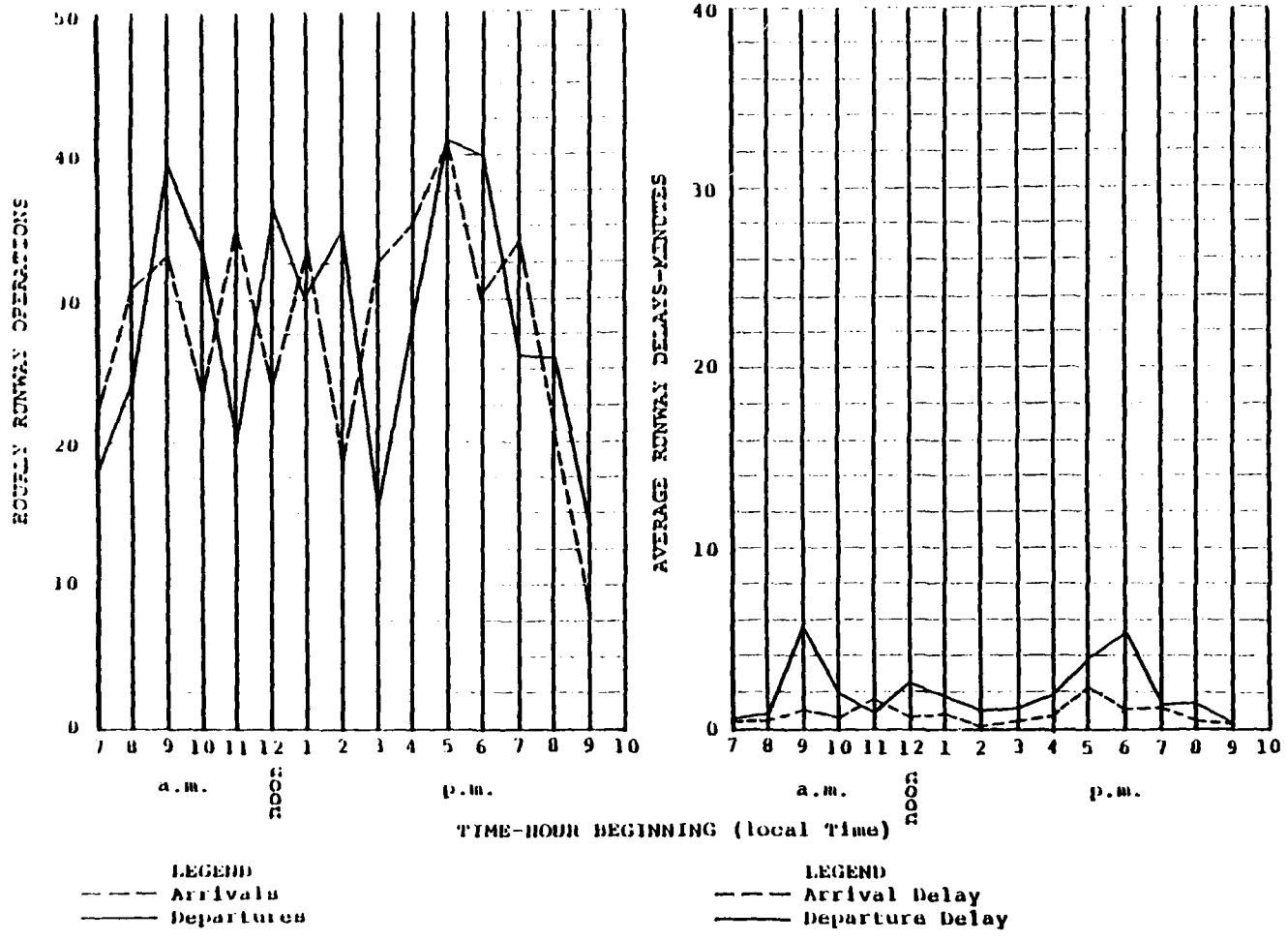
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.1	40.2
Arrival	Air delay	minute	1.0	2.5
Departure	Flow rate	a/c per hr	28.5	41.4
Departure	Runway delay	minute	2.3	3.9

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 42

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L, AND 24
DEPARTURES ON 30R, 30L
IFR1 LDA APPROACH (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 43

Scenario:

This experiment is used to evaluate the effect of the proposed LDA approach on aircraft delays. It was assumed in this experiment that the planned airfield developments were in place. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L, 6

Length and Level of Detail of Simulation Run:

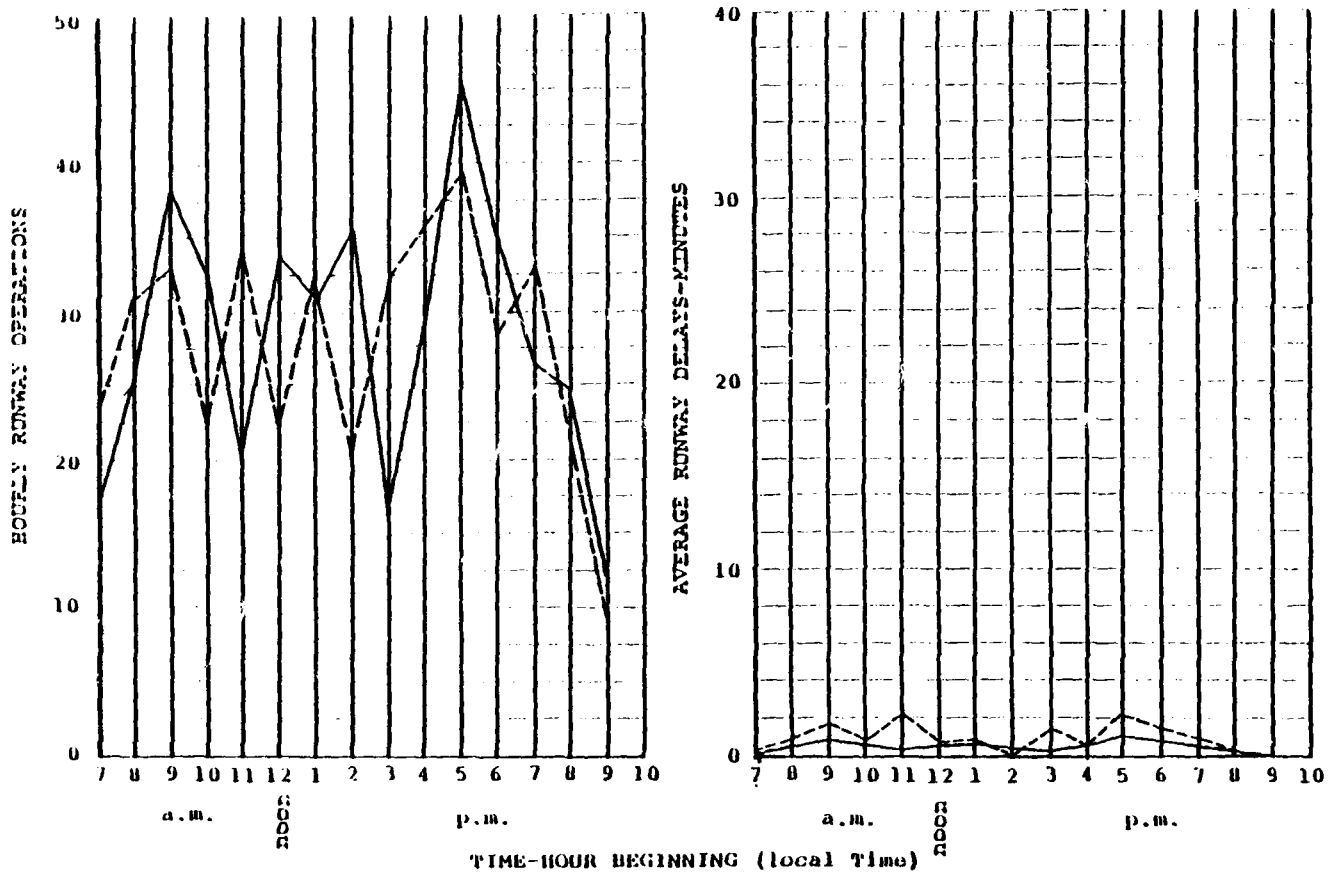
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.1	39.6
Arrival	Air delay	minute	1.3	2.5
Departure	Flow rate	a/c per hr	28.5	44.5
Departure	Runway delay	minute	0.7	1.3

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 43

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L, AND 6
IFR1 LDA APPROACH (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 44

Scenario:

This experiment is used to evaluate the effect of proposed terminal expansion on aircraft delays. Demand is at 1985 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

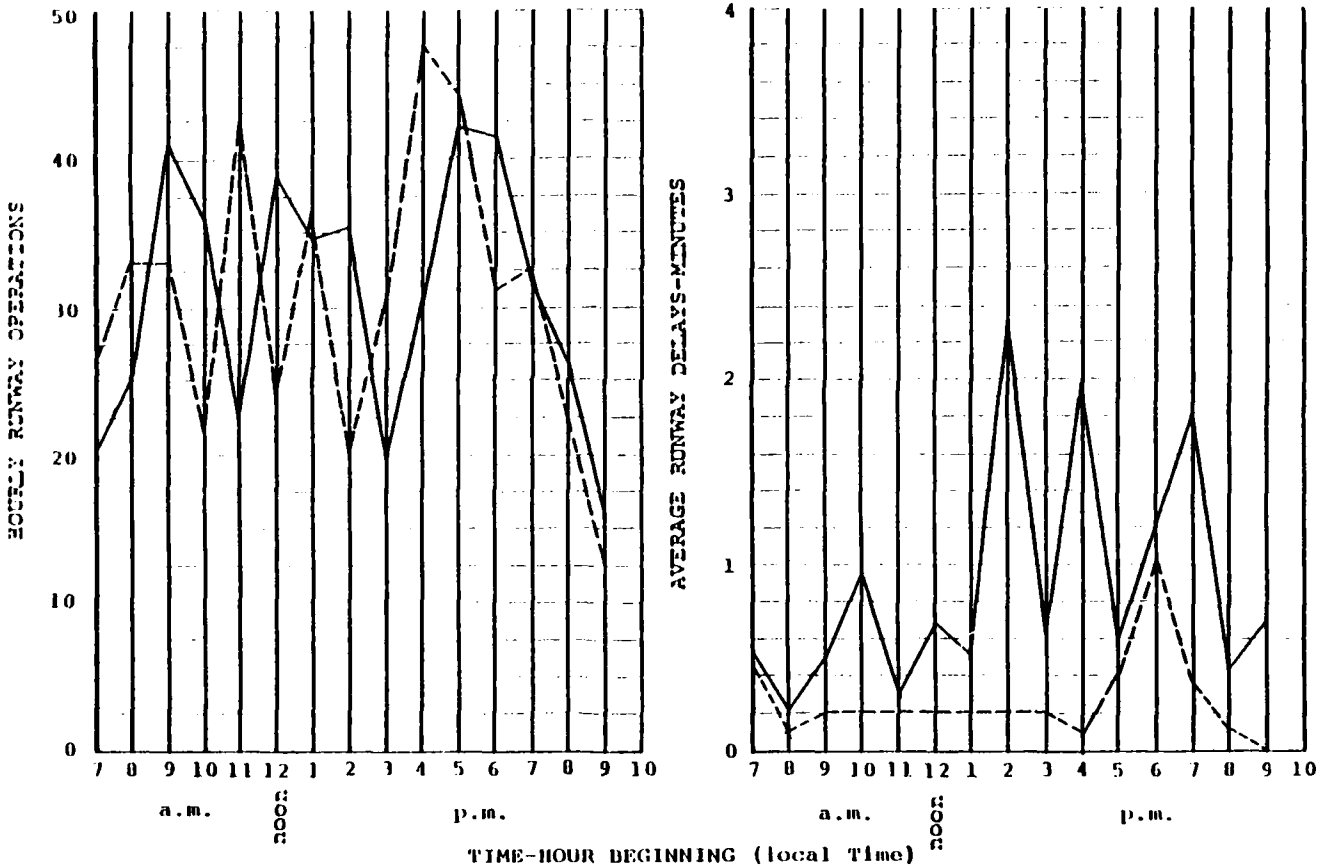
The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.8	31.8
Arrival	Taxi-in delay	minute	0.3	1.0
Departure	Flow rate	a/c per hr	30.8	41.6
Departure	Taxi-out delay	minute	0.9	1.2

Number of aircraft delayed because of gate congestion: 0.

Average gate congestion delays incurred by these aircraft: 0.0 minute.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 44

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR TERMINAL EXPANSION (1985)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 51

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

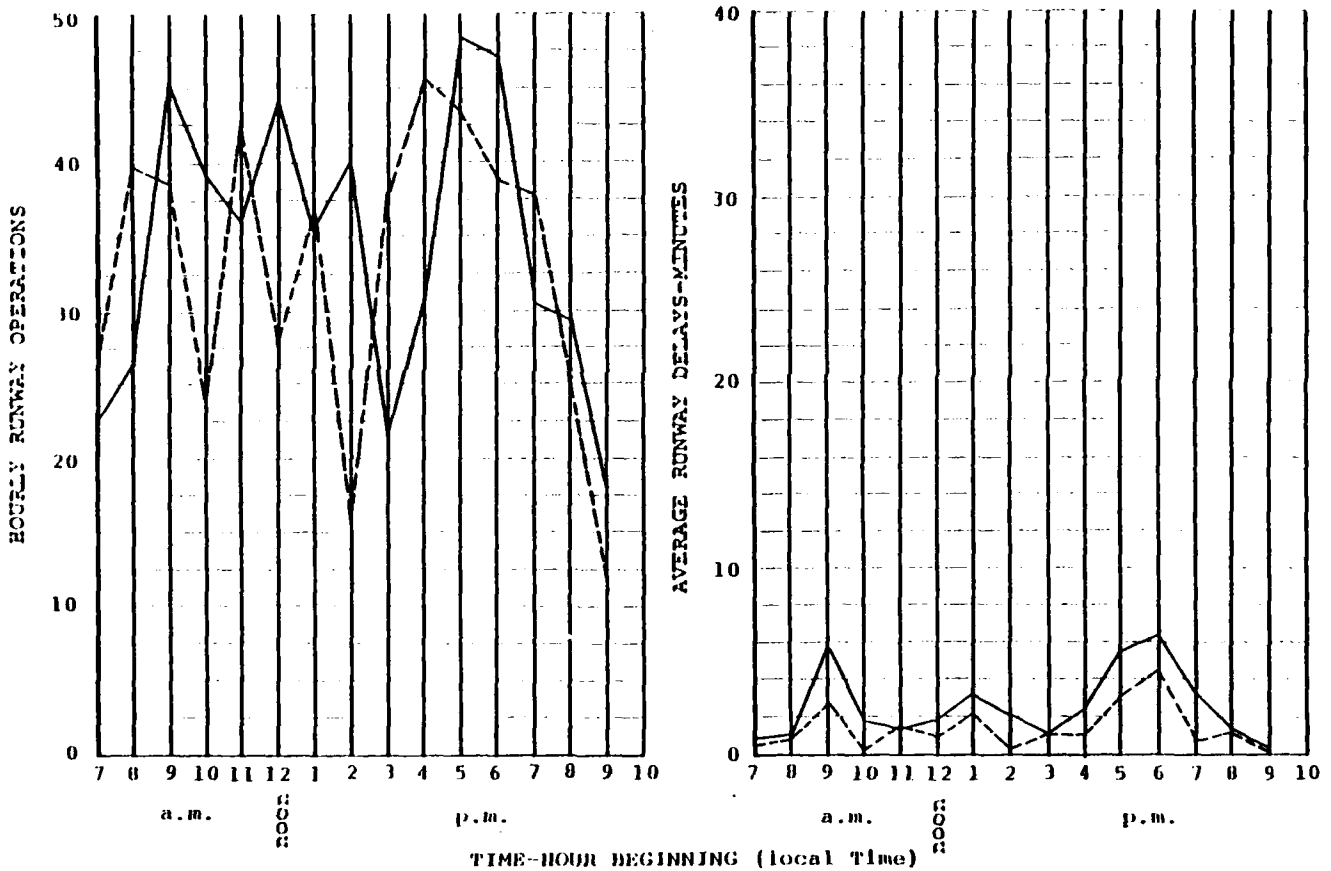
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	33.7	38.9
Arrival	Air delay	minute	1.8	4.5
Departure	Flow rate	a/c per hr	33.7	47.2
Departure	Runway delay	minute	3.1	6.4

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 51

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR AIRFIELD DEVELOPMENT (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 51A

Scenario:

This experiment is used to evaluate the effect of an increase in the proportion of heavy jets in the aircraft mix on aircraft delays. It was assumed in this experiment that the planned airfield developments were in place. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

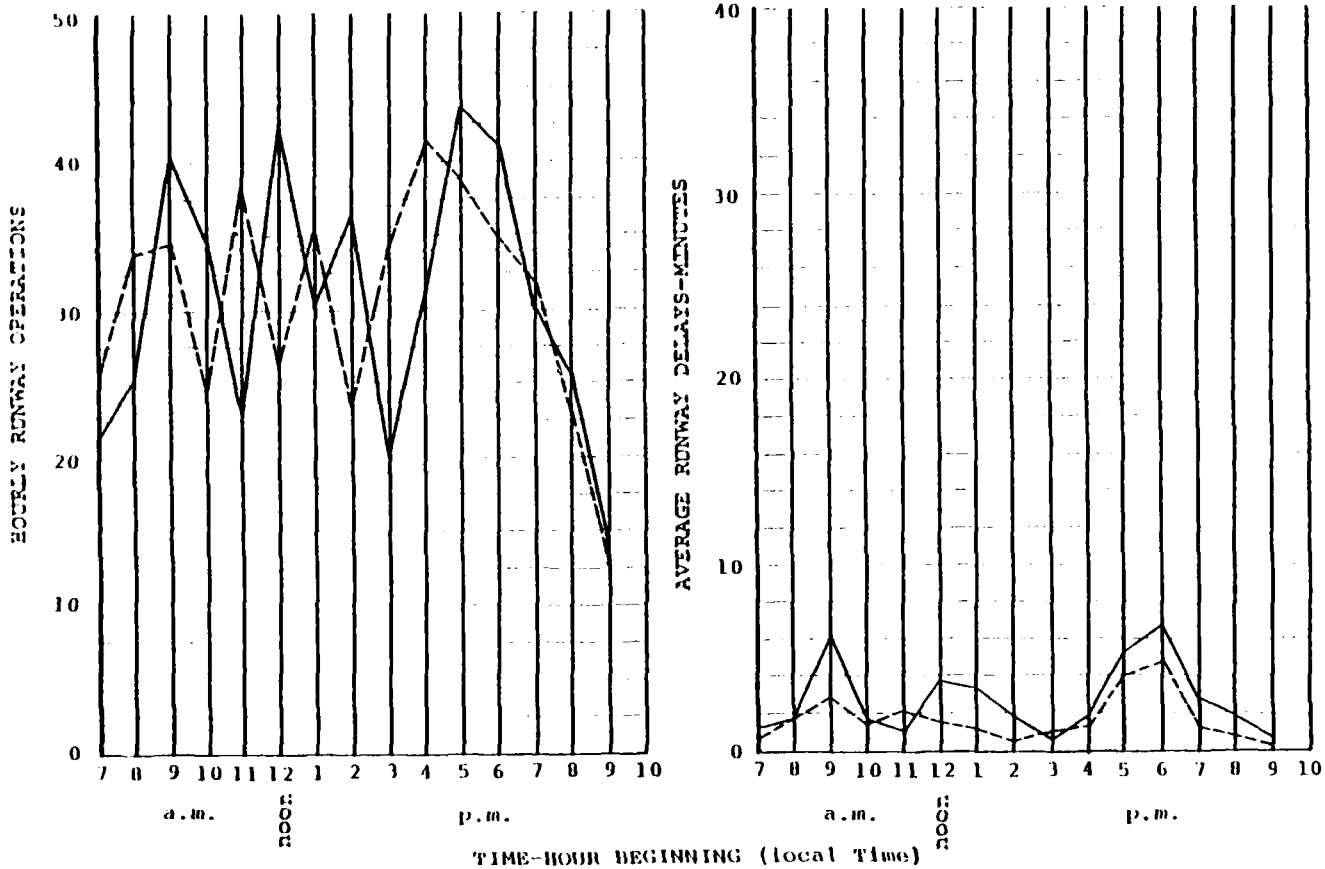
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	30.4	35.7
Arrival	Air delay	minute	2.0	4.7
Departure	Flow rate	a/c per hr	30.6	41.5
Departure	Runway delay	minute	3.1	6.3

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 51A

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR AIRFIELD DEVELOPMENT
INCREASED HEAVY (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 51B

Scenario:

This experiment is used to evaluate the effect of decreasing the proportion of general aviation aircraft in the mix on aircraft delays. It was assumed in this experiment that the planned airfield developments were in place. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

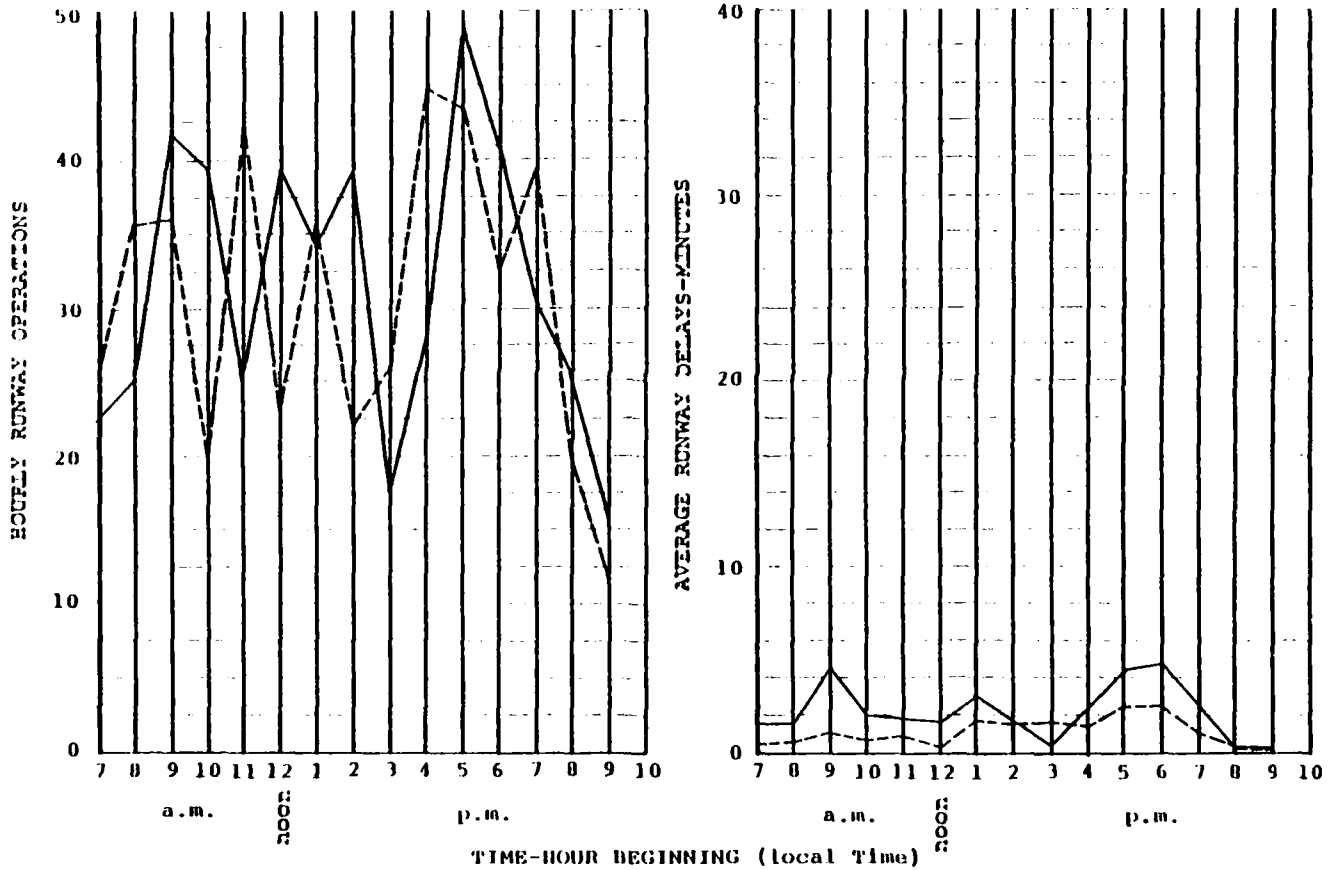
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	31.2	43.0
Arrival	Air delay	minute	1.2	2.2
Departure	Flow rate	a/c per hr	31.5	47.9
Departure	Runway delay	minute	2.5	4.4

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 51B

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR AIRFIELD DEVELOPMENT
DECREASED GENERAL AVIATION (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 52

Scenario:

This experiment is used to evaluate the effect of the planned airfield developments on aircraft delays. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

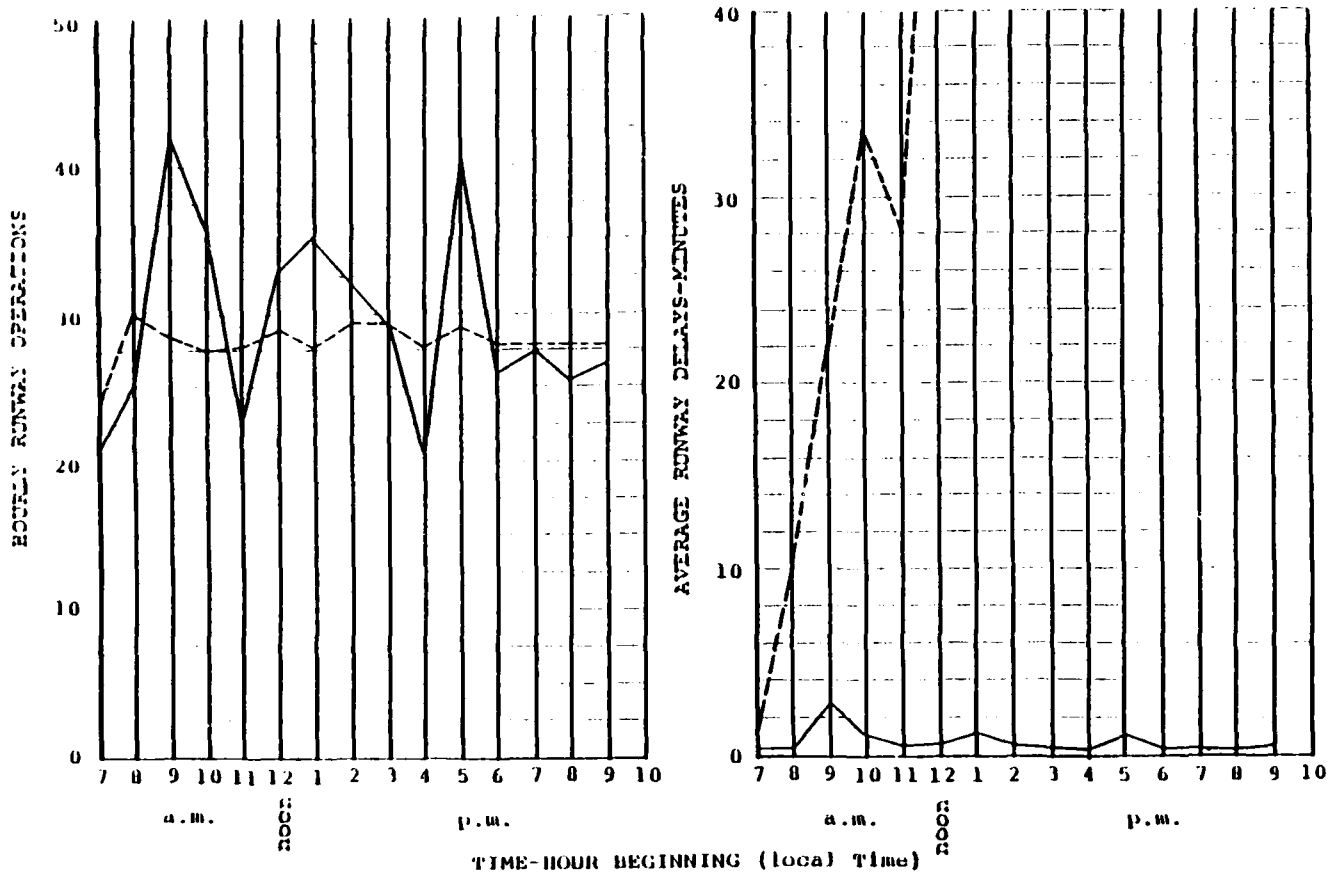
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 2100-2200 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.0	28.2
Arrival	Air delay	minute	60.6	141.9
Departure	Flow rate	a/c per hr	29.6	26.9
Departure	Runway delay	minute	0.8	0.5

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 52

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
IFR1 AIRFIELD DEVELOPMENT (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 55

Scenario:

This experiment is used to evaluate the effect of the planned airfield developments on aircraft delays. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

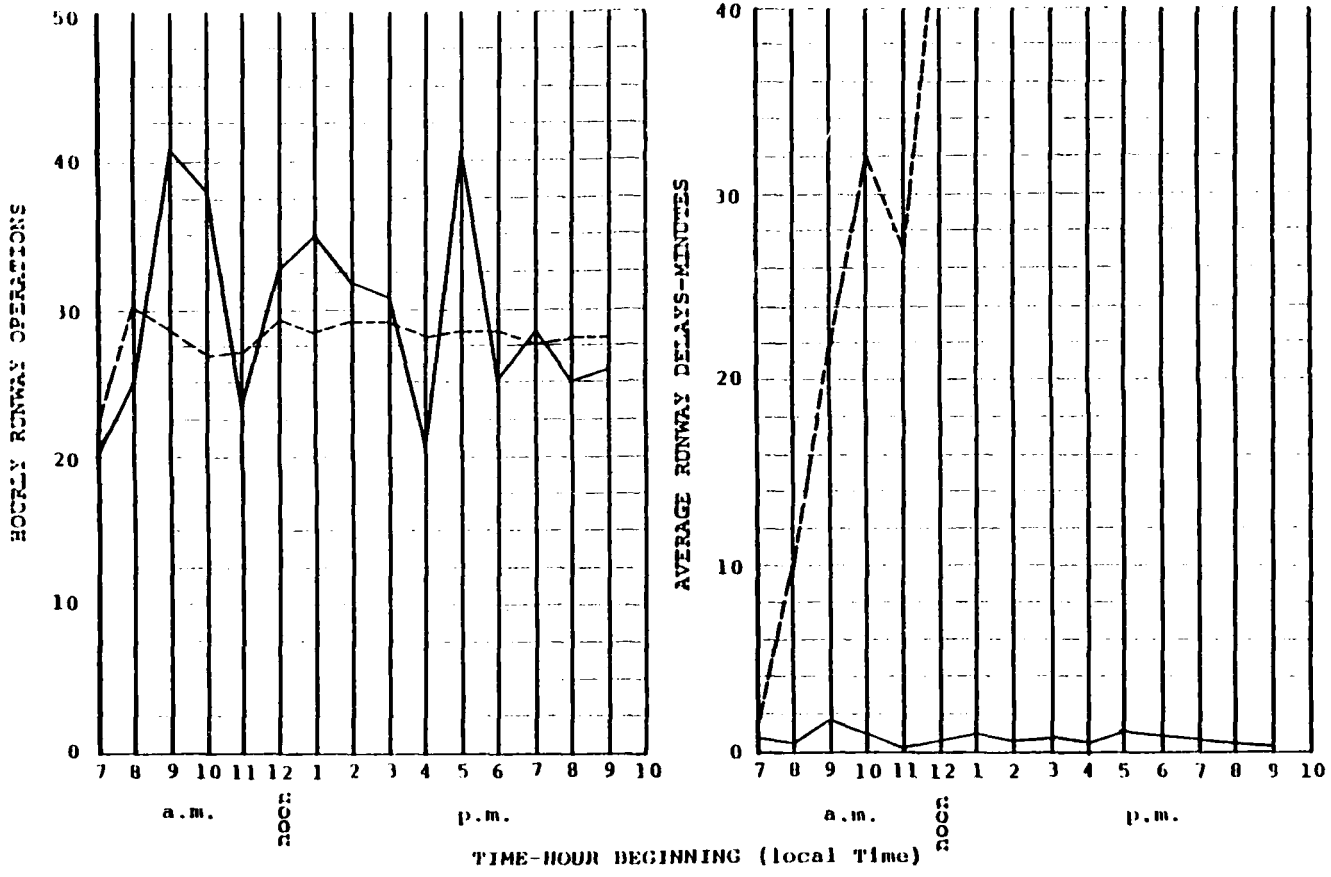
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 2100-2200 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.0	27.8
Arrival	Air delay	minute	60.2	141.4
Departure	Flow rate	a/c per hr	29.6	26.4
Departure	Runway delay	minute	0.7	0.5

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 55

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L
IFR1 AIRFIELD DEVELOPMENT (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 57A

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L, 24	30R, 30L

Length and Level of Detail of Simulation Run:

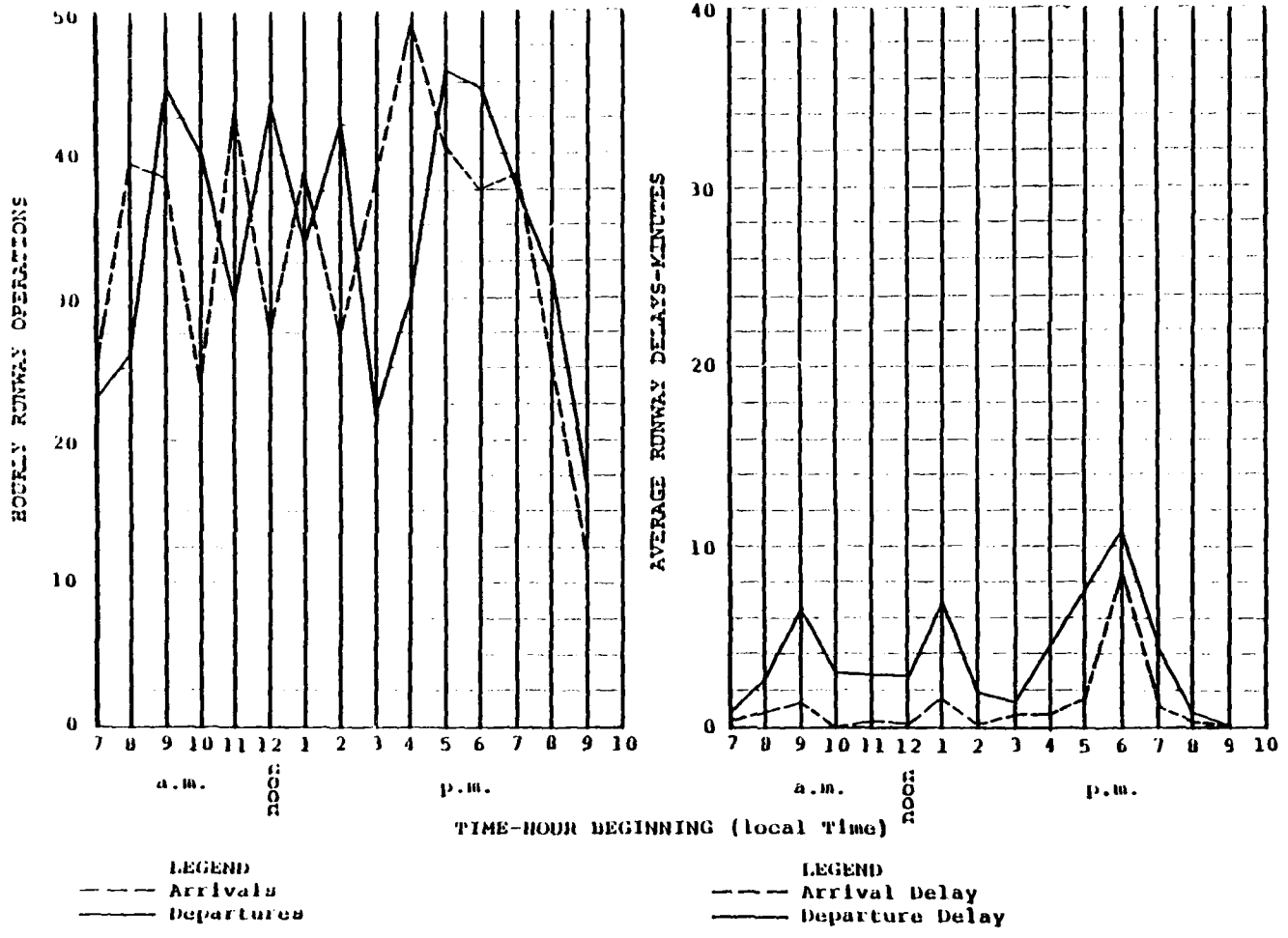
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	33.7	37.6
Arrival	Air delay	minute	1.5	8.2
Departure	Flow rate	a/c per hr	33.8	44.9
Departure	Runway delay	minute	4.5	11.2

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 57A

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L, AND 24
DEPARTURES ON 30R, 30L
VFR AIRFIELD DEVELOPMENT (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 57

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L, 24	30R, 30L

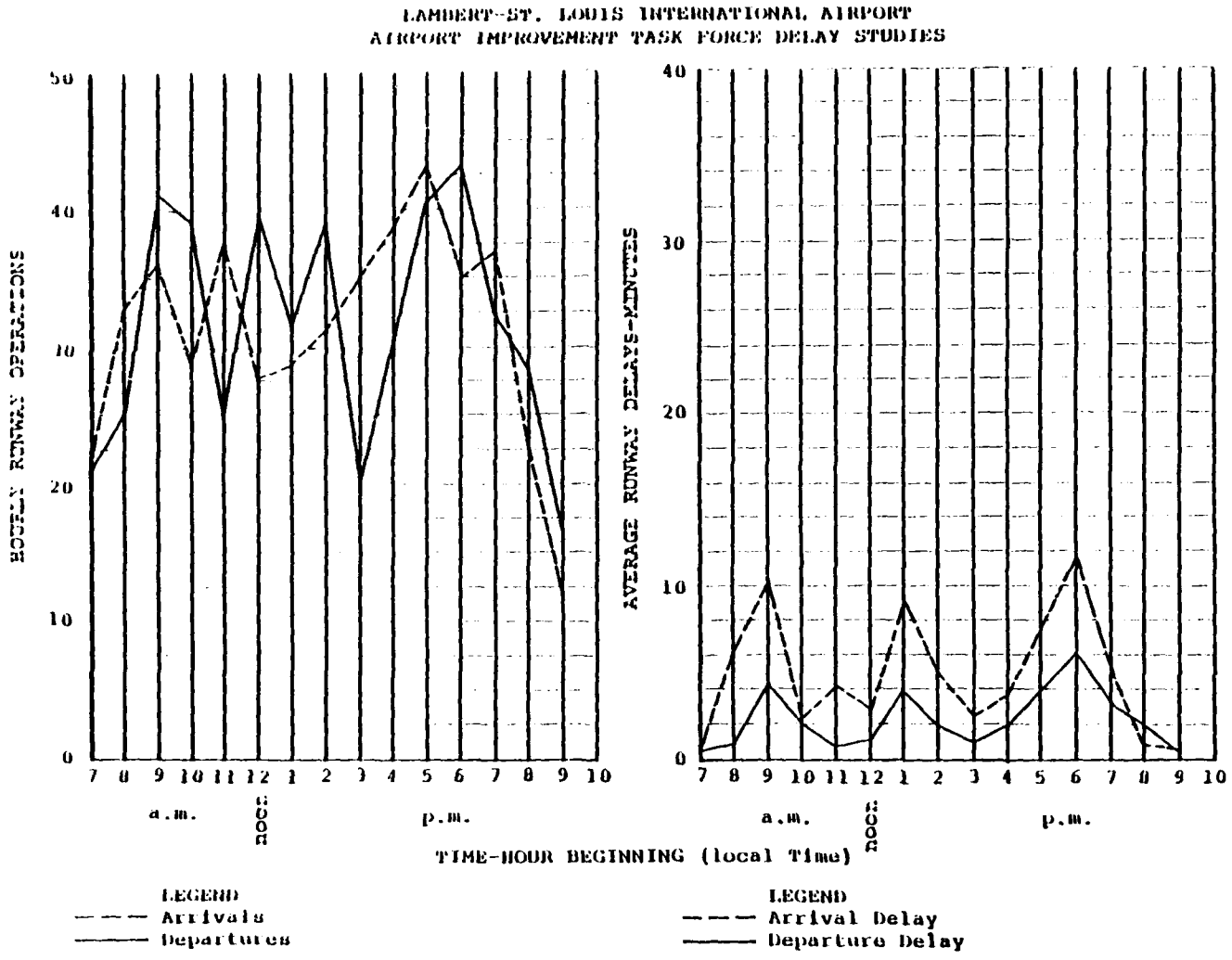
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	31.3	35.0
Arrival	Air delay	minute	5.3	12.1
Departure	Flow rate	a/c per hr	31.5	43.5
Departure	Runway delay	minute	2.7	6.4



Experiment 57

Lambert—St. Louis International Airport

ARRIVALS ON 30R, 30L, AND 24
DEPARTURES ON 30R, 30L
IFR 1 AIRFIELD DEVELOPMENT (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 58

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L, 6

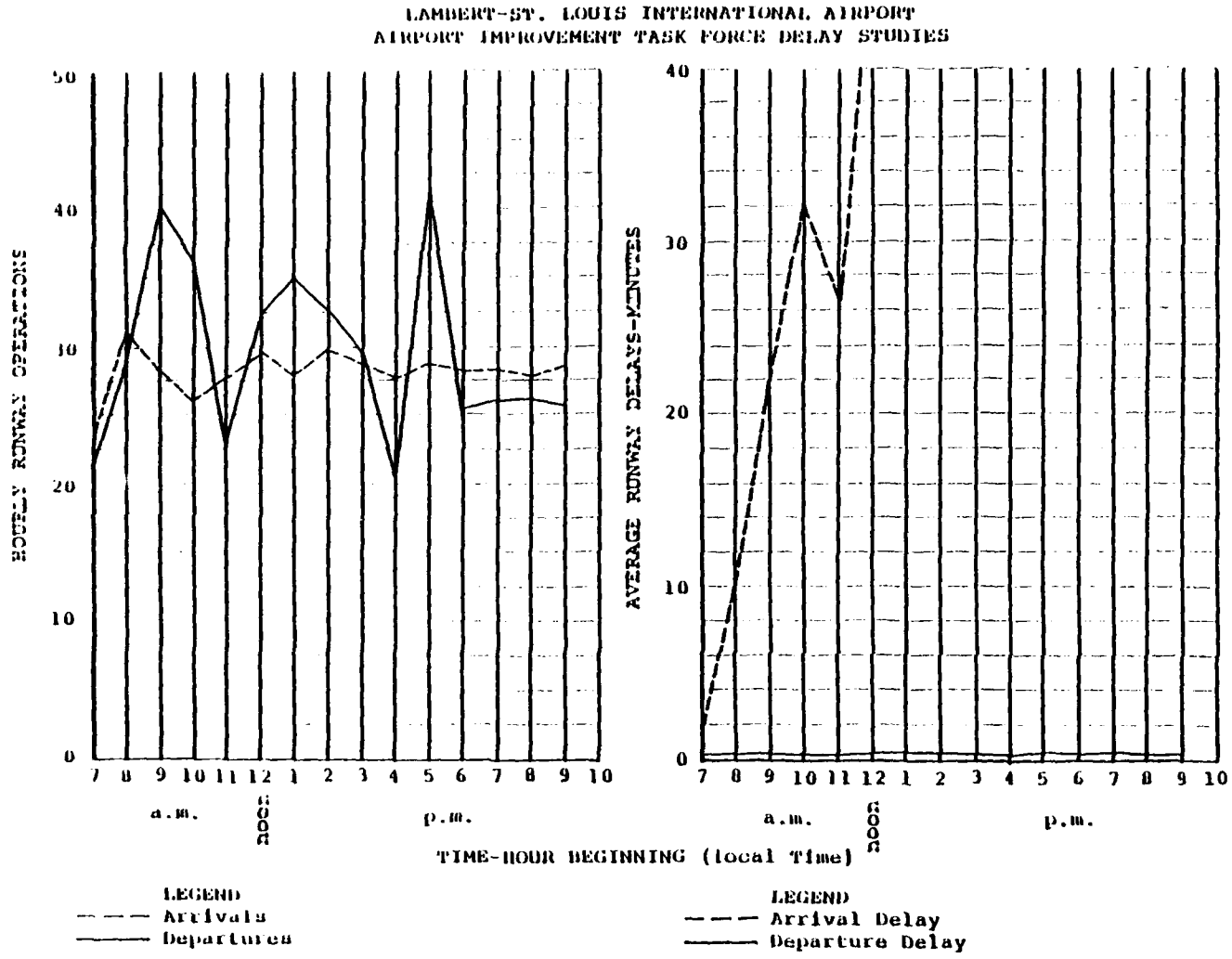
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 2100-2200 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	28.1	28.5
Arrival	Air delay	minute	59.7	140.7
Departure	Flow rate	a/c per hr	29.7	25.8
Departure	Runway delay	minute	0.3	0.3



Experiment **58**

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L, AND 6
IFR1 AIRFIELD DEVELOPMENT (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 60

Scenario:

This experiment is used to evaluate the effect of the proposed LDA approach on aircraft delays. It was assumed in this experiment that the planned airfield developments were in place. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L	30R, 30L

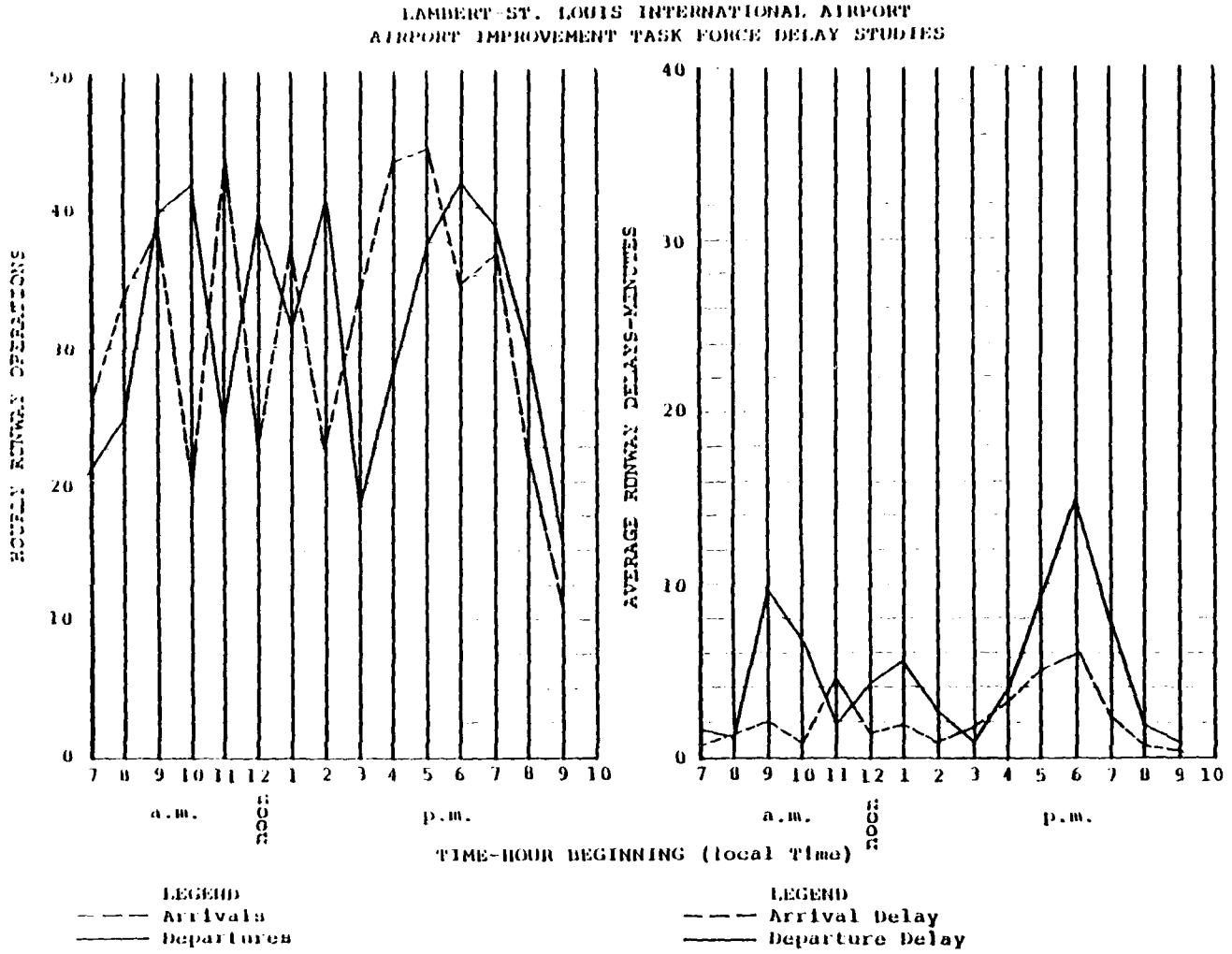
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	31.3	34.7
Arrival	Air delay	minute	2.6	5.9
Departure	Flow rate	a/c per hr	31.5	41.7
Departure	Runway delay	minute	5.6	15.0



Experiment **60**

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
IFR1 LDA APPROACH (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 61

Scenario:

This experiment is used to evaluate the effect of the proposed LDA approach on aircraft delays. It was assumed in this experiment that the planned airfield developments were in place. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
30R, 30L, 24	30R, 30L

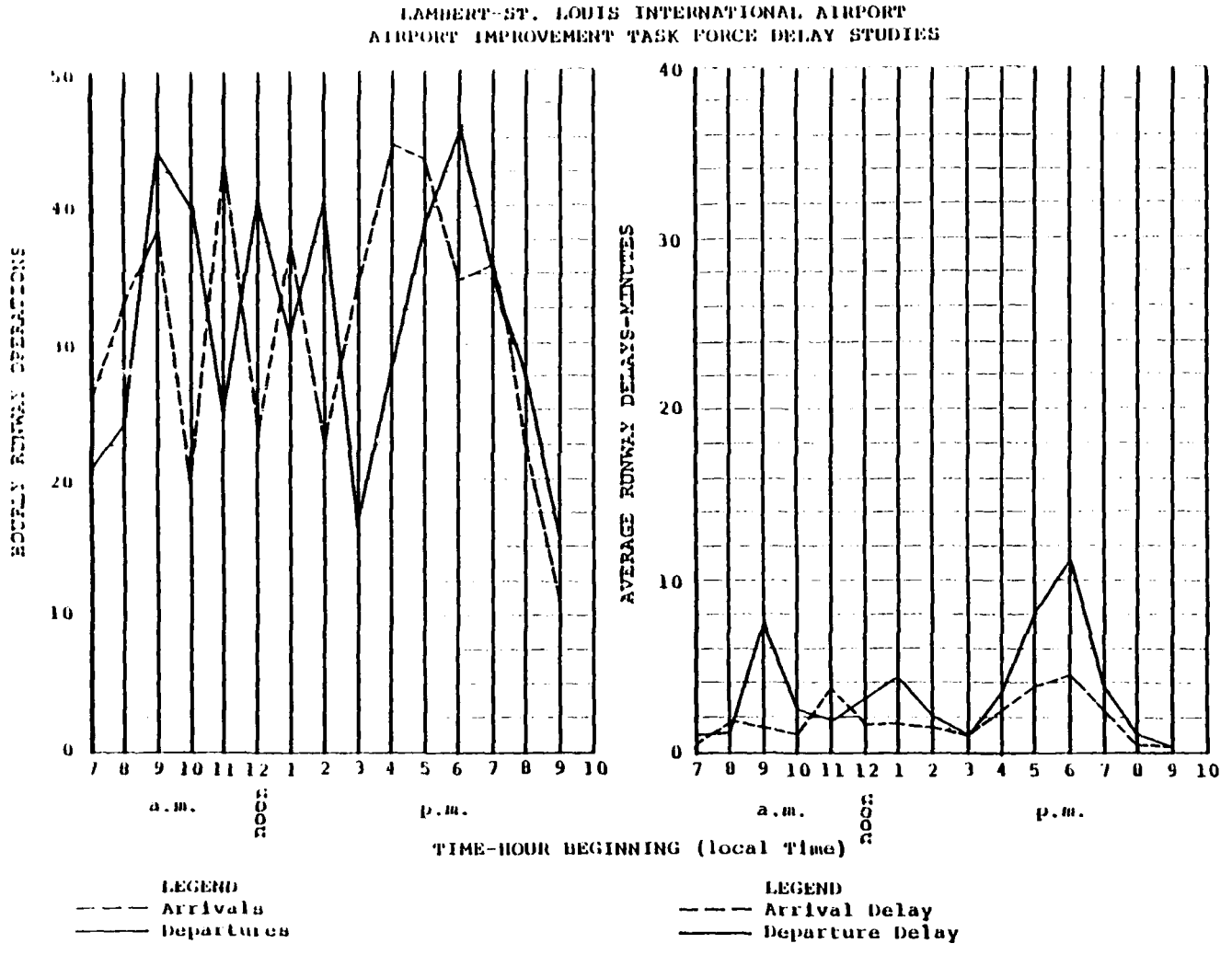
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	31.3	34.6
Arrival	Air delay	minute	2.6	4.1
Departure	Flow rate	a/c per hr	31.6	45.8
Departure	Runway delay	minute	4.3	11.1



Experiment 61

ARRIVALS ON 30R, 30L, AND 24
DEPARTURES ON 30R, 30L

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 62

Scenario:

This experiment is used to evaluate the effect of the proposed LDA approach on aircraft delays. It was assumed in this experiment that the planned airfield developments were in place. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L, 6

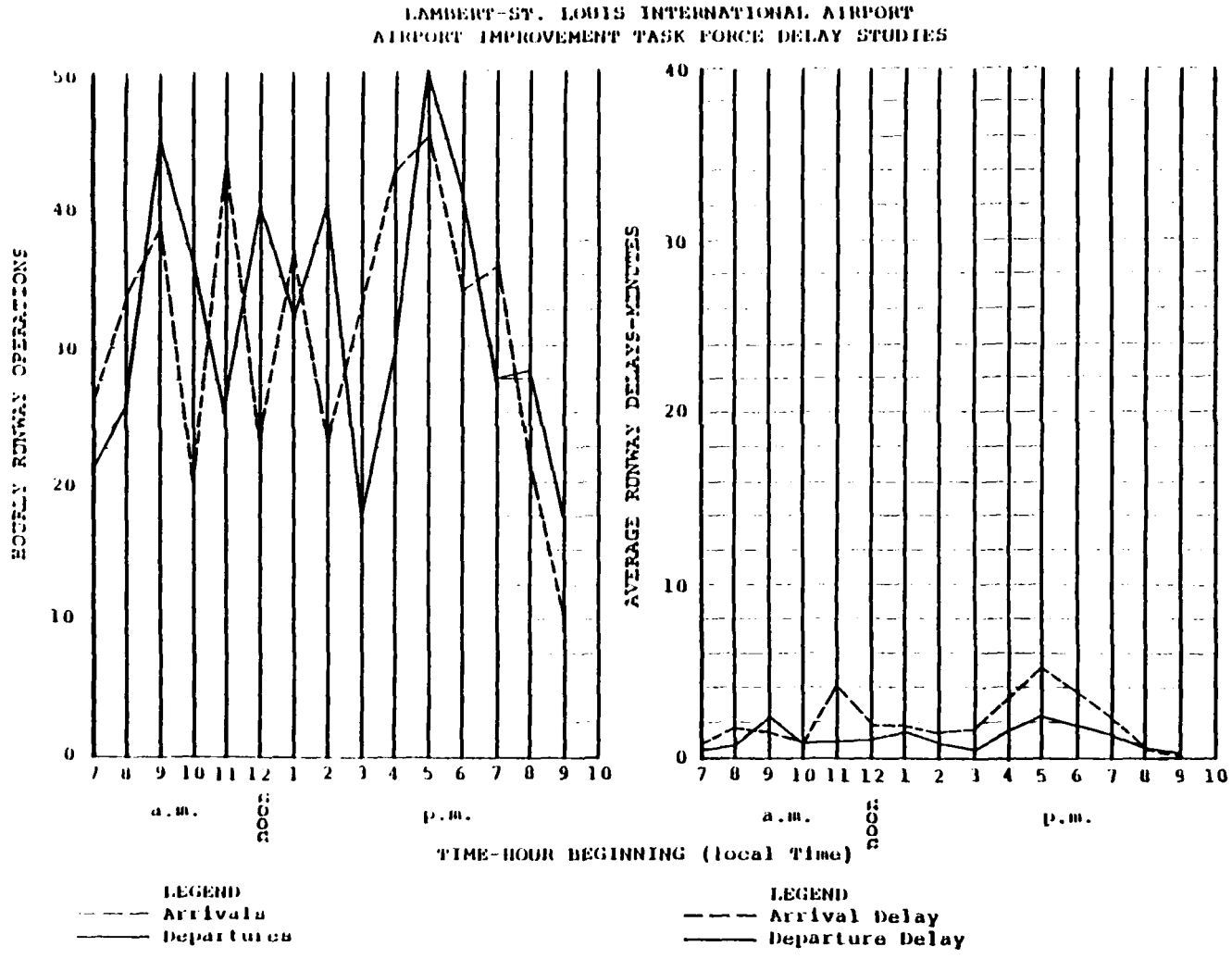
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	31.2	45.3
Arrival	Air delay	minute	2.4	5.2
Departure	Flow rate	a/c per hr	31.5	50.0
Departure	Runway delay	minute	1.3	2.5



Experiment 62

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L, AND 6
IFR1 LDA APPROACH (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 63

Scenario:

This experiment is used to evaluate the effect of proposed terminal expansion on aircraft delays. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

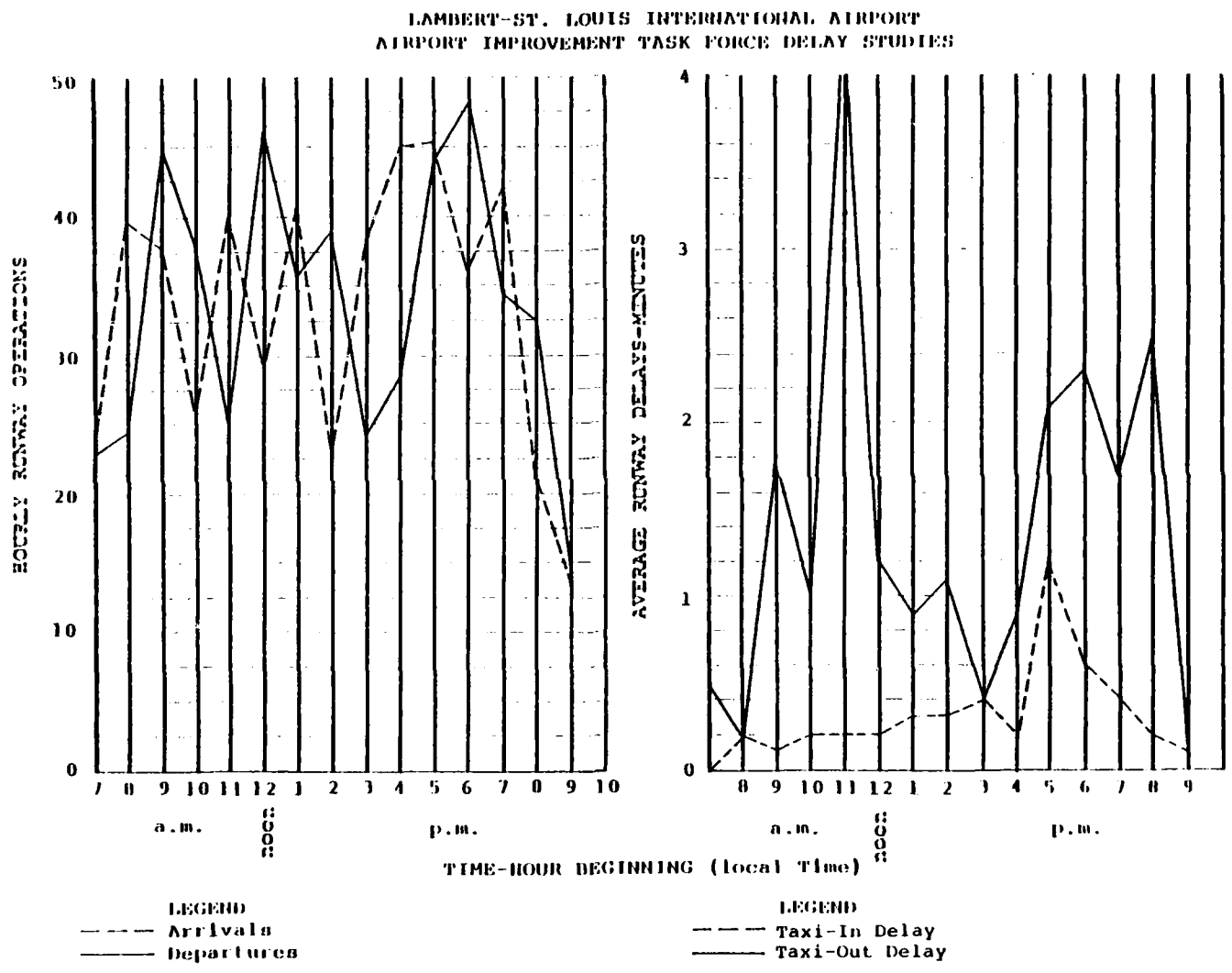
Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1700-1800 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	33.6	45.6
Arrival	Taxi-in delay	minute	0.4	1.2
Departure	Flow rate	a/c per hr	33.6	44.1
Departure	Taxi-out delay	minute	1.5	2.1

Number of aircraft delayed because of gate congestion: 2.

Average gate congestion delays incurred by these aircraft: 12.5 minutes.



Experiment 63

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR TERMINAL EXPANSION (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 64

Scenario:

This experiment is used to evaluate the effect of relocating the general aviation airfield on aircraft delays. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

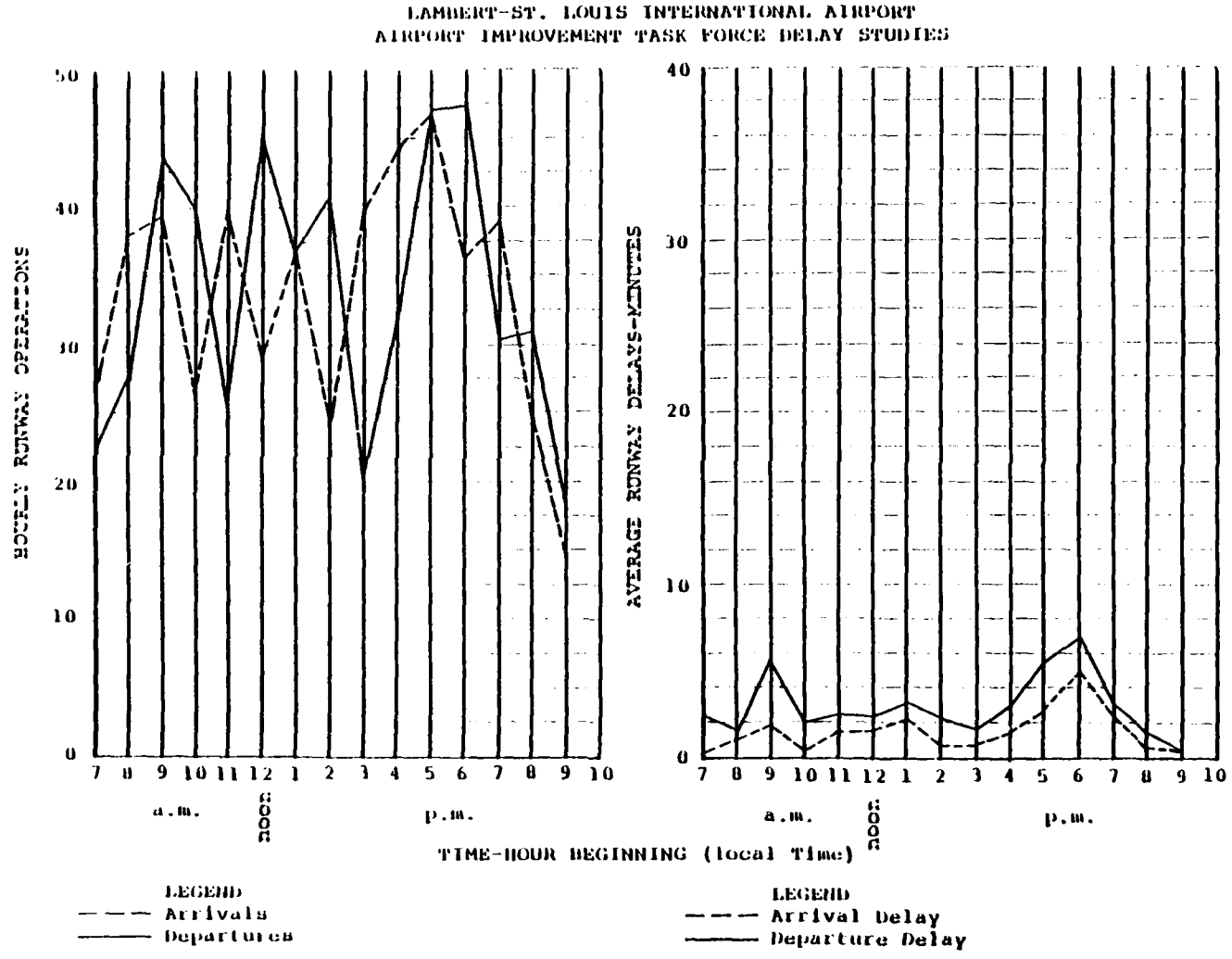
Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 1800-1900 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	33.7	36.5
Arrival	Air delay	minute	1.6	4.9
Departure	Flow rate	a/c per hr	33.7	47.5
Departure	Runway delay	minute	3.1	6.8



Experiment 64

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR MIDCOAST (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 64A

Scenario:

This experiment is used to evaluate the effect of relocating the general aviation airfield on aircraft delays. Demand is at 1990 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L GA Operations on 17	12R, 12L

Length and Level of Detail of Simulation Run:

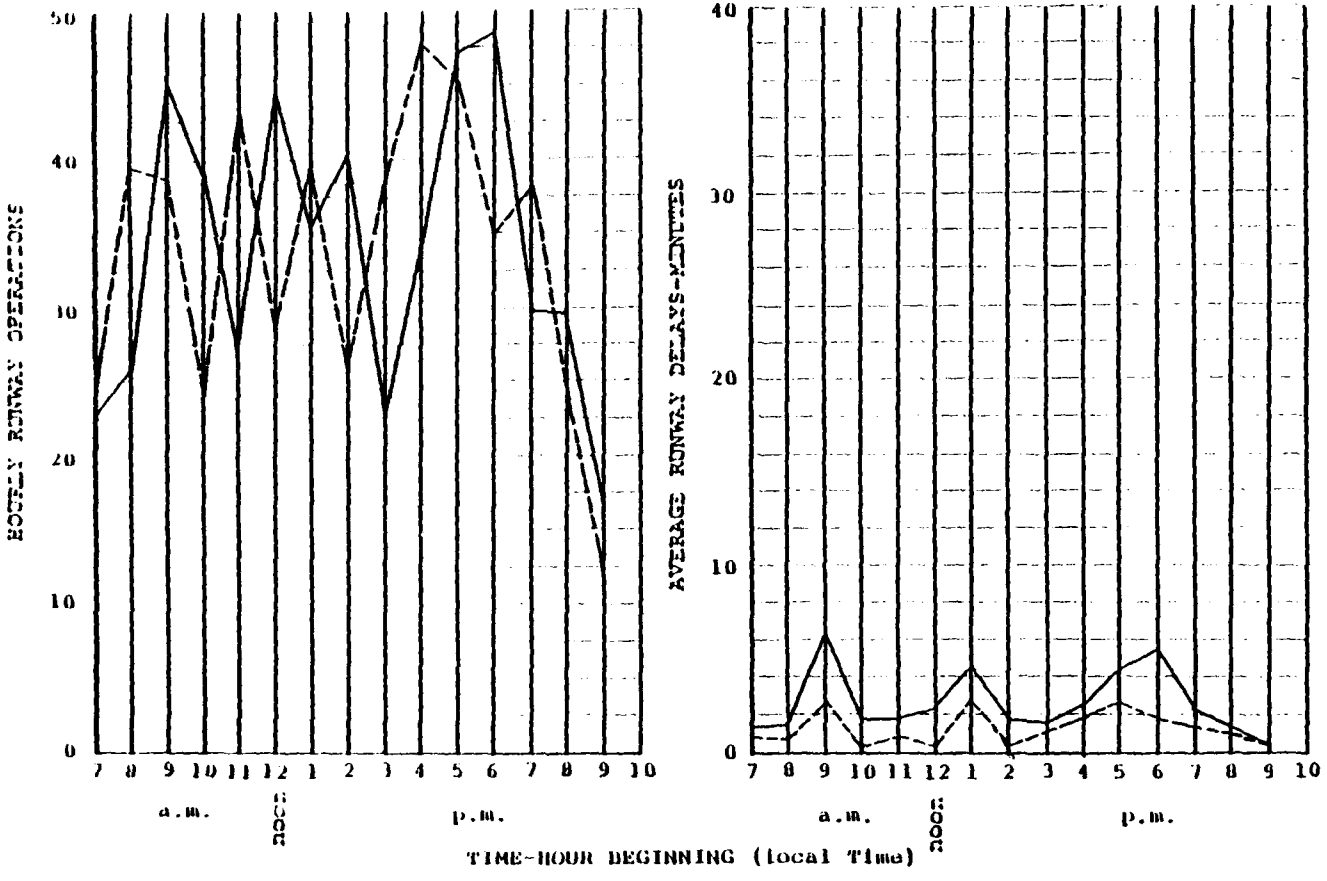
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 0900-1000 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	33.6	38.4
Arrival	Air delay	minute	1.4	2.6
Departure	Flow rate	a/c per hr	33.6	45.1
Departure	Runway delay	minute	2.9	6.5

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 64A

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
GENERAL AVIATION ON 17
DEPARTURES ON 12R, 12L
VFR MIDCOAST (1990)

Peat, Marwick, Mitchell & Co. August 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 72

Scenario:

This experiment is used to evaluate the effect of planned airfield developments on aircraft delays. Demand is at 1990 levels, and Future ATC Procedures are in effect in IFR1 conditions for the following runway configuration:

Arrival runways	Departure runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

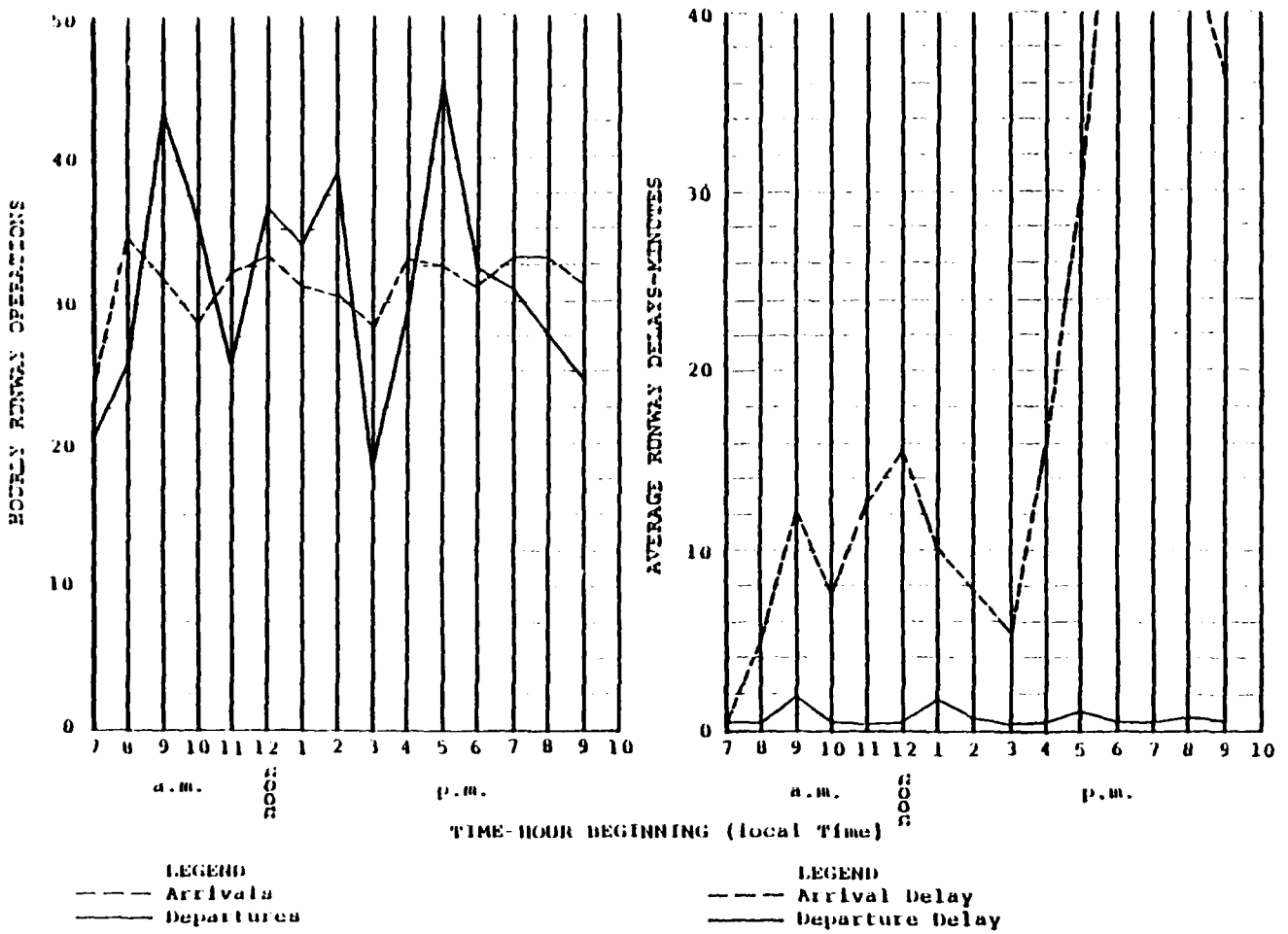
From 0700 to 2200 with 1-hour summaries.

Results:

The tabulation below shows selected results for the average values and the peak-delay hour, 2000-2100 hours, over the 15-hour simulation period.

Operation type	Performance measure	Units	Average	Peak
Arrival	Flow rate	a/c per hr	31.2	32.9
Arrival	Air delay	minute	21.8	57.1
Departure	Flow rate	a/c per hr	31.3	27.3
Departure	Runway delay	minute	0.7	0.5

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 72

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
IFR FUTURE ATC,
AIRFIELD DEVELOPMENT (1990)

Peat, Marwick, Mitchell & Co. August 1980

Attachment D

ASSUMPTIONS

ASSUMPTIONS

The assumptions and inputs used in performing the simulation experiments for the Lambert-St. Louis International Airport Improvement Task Force Delay Study were presented in Data Package No. 5. The following contains additions and revisions to those assumptions and inputs.

1. Separations on Parallel Runways (Present ATC Rules)

Arrival-Arrival Air Separation (nautical miles). The average time separation between successive arrivals as they cross the runway threshold.

VFR

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	1.8	1.8	1.8	1.8
	B	1.8	1.8	1.8	1.8
	C	1.8	1.9	3.0	3.1
	D	5.3	5.5	4.7	3.9

IFR

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	3.2	3.2	4.1	4.2
	B	3.2	3.2	4.1	4.2
	C	4.2	4.2	3.6	3.6
	D	6.8	7.0	5.3	4.6

Departure-Departure Air Separation (seconds). The average time separation between successive departures (on the same runway) as they start their takeoff roll.

Different Flight Tracks

VFR and IFR1 (above 800/2)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	46	38	45	50
	B	39	38	45	50
	C	40	38	45	50
	D	120	120	120	70

IFR2 (800/2 - 300/0.75)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	62	65	70	72
	B	51	55	61	63
	C	50	55	60	62
	D	120	120	120	80

IFR3 (below 300/0.75): Same as separations for same flight track.

Same Flight Track

All weather categories

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	79	93	95	95
	B	62	70	77	77
	C	60	60	74	74
	D	120	120	120	90

2. Separations for Two Intersecting Runways

Departure-Arrival Separation for Intersecting Runways (nautical miles). The average time for a departing aircraft to clear the intersection of runways.

Existing Airfield Layout

Departure-arrival separation between lead aircraft on Runway 30R and trail aircraft on Runway 24.

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	1.6[a]	1.6	1.7	1.9
	B	1.5[a]	1.5	1.6	1.7
	C	1.4[a]	1.4	1.5	1.6
	D	1.4[a]	1.4	1.5	1.6

a. These separations are assumed to be zero in VFR weather.

Departure-arrival separation between lead aircraft on Runway 30L and trail aircraft on Runway 24.

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	1.8[a]	1.8[a]	1.8	1.9
	B	1.8[a]	1.8[a]	1.8	1.9
	C	1.6[a]	1.6[a]	1.6	1.8
	D	1.6[a]	1.6[a]	1.6	1.8

a. These separations are assumed to be zero in VFR weather.

Airfield Development

Departure-arrival separation between lead aircraft on Runway 30R and trail aircraft on Runway 24.

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	1.8[b]	2.3	2.5	2.7
	B	1.7[b]	2.1	2.3	2.5
	C	1.4[b]	1.7	1.9	2.1
	D	1.4[b]	1.7	1.9	2.1

Departure-arrival separation between lead aircraft on Runway 30L and trail aircraft on Runway 24.

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	1.7[b]	2.2[b]	2.3	2.5
	B	1.5[b]	1.9[b]	2.0	2.2
	C	1.4[b]	1.7[b]	1.8	2.0
	D	1.4[b]	1.7[b]	1.8	2.0

b. These separations are assumed to be zero in VFR weather.

3. Separations on Parallel Runways (Future ATC Rules)

Arrival-Arrival Air Separation (nautical miles). The average time separation between successive arrivals as they cross the runway threshold.

IFR

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	3.2	3.2	3.4	3.5
	B	3.2	3.2	3.4	3.5
	C	3.7	3.9	3.4	3.5
	D	4.2	4.4	3.9	3.5

Departure-Departure Air Separation (seconds).

Different Flight Tracks

VFR and IFR1

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	46	38	45	50
	B	39	38	45	50
	C	40	38	45	50
	D	90	90	90	60

Same Flight Track

All weather categories

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	79	93	95	95
	B	62	70	77	77
	C	60	60	74	74
	D	90	90	90	74

4. Arrival Runway Occupancy Times (seconds)

The average elapsed time between the time an arrival crosses the runway threshold and the time when it clears the runway. These data have been coordinated with St. Louis control tower staff.

Existing Airfield Layout

Aircraft Class	Weighted average Runway occupancy (seconds) 30R	30L
A	36	35
B	47	44
C	52	49
D	56	55

Aircraft Class	Weighted average Runway occupancy (seconds) 12L	12R
A	34	40
B	44	43
C	56	45
D	61	50

Aircraft Class	Weighted average Runway occupancy (seconds) 24	17
A	48	35
B	45	--
C	52	--
D	59	--

Airfield Development

Aircraft Class	Weighted average Runway occupancy (seconds) 30R	30L
A	37	35
B	47	43
C	52	49
D	59	56

Aircraft Class	Weighted average Runway occupancy (seconds) 12L	12R
A	34	40
B	44	43
C	56	45
D	61	50

5. Runway Assignments

The following tables show runway assignments assumed for all experiments, for the existing and airfield development layouts.

Table D-1

RUNWAY ASSIGNMENT--EXISTING AIRFIELD LAYOUT

Experiment No.	Runway	Percent of aircraft: Arrivals A	Arrivals B	Arrivals C	Arrivals D	Departures A	Departures B	Departures C	Departures D
1, 1A, 26	12L	90	70	35	--	90	70	35	--
	12R	10	30	65	100	10	30	65	100
2, 27	12L	--	--	--	--	100	100	35	--
	12R	100	100	100	100	--	--	65	100
3, 28	12L	--	--	--	--	100	100	35	--
	12R	100	100	100	100	--	--	65	100
4, 4A, 29	30R	90	70	35	--	90	70	35	--
	30L	10	30	65	100	10	30	65	100
5, 30	30R	--	--	--	--	100	100	35	--
	30L	100	100	100	100	--	--	65	100
6, 31	30R	--	--	--	--	100	100	35	--
	30L	100	100	100	100	--	--	65	100
7A, 32A	30R	--	70	35	--	90	70	35	--
	30L	--	30	65	100	10	30	65	100
	24	100	--	--	--	--	--	--	--
7, 32	30R	--	--	--	--	100	100	30	--
	30L	--	--	100	100	--	--	70	100
	24	100	100	--	--	--	--	--	--
8	6	--	--	--	--	--	20	80	--
	12L	90	70	20	--	100	80	20	--
	12R	10	30	80	100	--	--	--	100
9, 33	6	--	--	--	--	--	20	70	--
	12L	--	--	--	--	100	80	30	--
	12R	100	100	100	100	--	--	--	100
10	6	--	--	--	--	--	20	80	--
	12L	--	--	--	--	100	80	20	--
	12R	100	100	100	100	--	--	--	100
11	24	100	100	100	100	100	100	100	100
12	12L	--	90	35	--	100	90	30	--
	12R	--	10	65	100	--	10	70	100
	17	100	--	--	--	--	--	--	--
13, 34	12L	--	--	--	--	100	100	30	--
	12R	--	100	100	100	--	--	70	100
	17	100	--	--	--	--	--	--	--

Table D-2

RUNWAY ASSIGNMENT--AIRFIELD DEVELOPMENT LAYOUT

Experiment No.	Runway	Percent of aircraft: Arrivals A	Arrivals B	Arrivals C	Arrivals D	Departures A	Departures B	Departures C	Departures D
35, 35A ,35B	12L	50	50	50	50	50	50	50	50
44, 51, 51A, 51B, 63	12R	50	50	50	50	50	50	50	50
36, 52, 72	12L	--	--	--	--	100	100	100	100
	12R	100	100	100	100	--	--	--	--
38, 55	30R	--	--	--	--	100	100	100	100
	30L	100	100	100	100	--	--	--	--
39A, 57A	30R	50	50	30	50	35	35	35	35
	30L	--	--	10	50	65	65	65	65
	24	50	50	60	--	--	--	--	--
39, 57	30R	--	--	--	--	100	100	80	80
	30L	--	--	100	100	--	--	20	20
	24	100	100	--	--	--	--	--	--
40, 58	6	--	--	--	--	60	60	60	--
	12L	--	--	--	--	40	40	40	100
	12R	100	100	100	100	--	--	--	--
41, 60	30R	50	50	50	50	50	50	50	50
	30L	50	50	50	50	50	50	50	50
42, 61	30R	--	--	50	50	50	50	50	50
	30L	--	--	50	50	50	50	50	50
	24	100	100	--	--	--	--	--	--
43, 62	6	--	--	--	--	60	60	60	--
	12L	50	50	50	50	20	20	20	50
	12R	50	50	50	50	20	20	20	50
64	12L	50	50	50	50	50	50	50	50
	12R	50	50	50	50	50	50	50	50
64A	12L	--	80	40	40	100	80	30	30
	12R	--	20	60	60	--	20	70	70
	17	100	--	--	--	--	--	--	--

6. Effect of Weather Conditions on Demand

It is assumed that during IFR1 weather, 57% of general aviation Class A operations and 37% of general aviation Class B operations would not occur. During IFR2 weather, it is assumed that 86% of general aviation Class A operations, 63% of general aviation Class B operations, and 100% of the military operations would not occur.

7. Localizer Directional Aid (LDA) Operations

In LDA experiments, IFR1 separations are utilized, and the arrivals on parallel runways are assumed to be independent, with the exception of wake turbulence dependency. When there is a third arrival stream on Runway 24, it is assumed that only Class A arrivals occur on this runway and will hold short of Runway 30R. Therefore, the three arrival streams are assumed to be independent.

8. Noise Abatement Scenarios

There are three scenarios studied for two runway uses in VFR: Runways 12L and 12R and Runways 30L and 30R, with the existing airfield layout. The simulation runs are performed without stretching the arrival gaps. In scenarios 2 and 3, the noise abatement procedure is not in effect during the departure peak hour (2 p.m. local time).

Scenario 1. In this scenario, the departures on both runways are assumed to make their turns as soon as the aircraft is airborne and stabilized.

Scenario 2. In this scenario, the departures on Runway 12L (or 30R) are assumed to make their turns as soon as the aircraft is airborne and stabilized. Departures on Runway 12R (or 30L) are assumed to go straight out until they reach an altitude of 1,500 feet AGL* (2,000 feet MSL**).

Scenario 3. In this scenario, the departures on both runways are assumed to follow the same flight path until they reach an altitude of 1,500 feet AGL (2,000 feet MSL).

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*Above ground level.
**Mean sea level.

9. Terminal Expansion

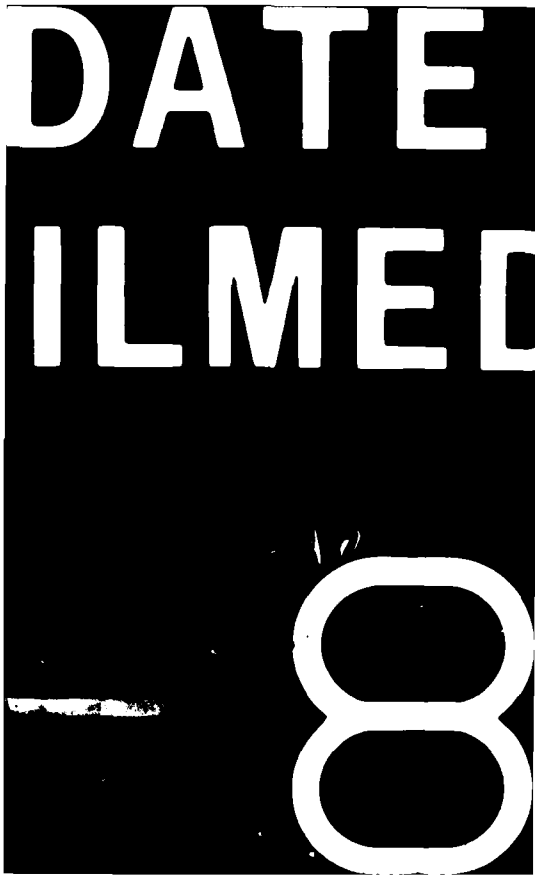
On the basis of discussions with St. Louis Airport staff, it was decided that the current best estimate for the total number of gates resulting from terminal expansion is 73, which implies that there will be no unit terminal.

The future number of gates for each airline is estimated to be proportional to the projected traffic growth of that airline.

It is also assumed that no widebody aircraft can be accommodated by the gates situated between concourse 'C' and the expanded terminal facilities.

10. Runway Interarrival Gap

The arrival separations increase from the specified values to 4 minutes when the departure queue length in VFR weather exceeds 6 aircraft on Runway 12R-30L, 4 aircraft on Runway 12L-30R, and 6 aircraft on Runway 6-24. During IFR weather, arrival separations increase when the departure queue length exceeds 8 aircraft on all runways.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